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THE

ENTOMOLOGIST'S MONTHLY MAGAZINE:

CONDUCTED BY

J. W. DOUGLAS. E. C. RYE, F.Z.S.

R. McLACHLAN, F.L.S. H. T. STAINTON, F.R.S.

VOL. XI.

"*Omnium rerum principia parva sunt, sed suis progressionibus usa, augentur.*"—Cicero.

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THE
Entomologist's Monthly Magazine
VOLUME XI.

After ten years' editorial connection with this Magazine, the present seems a fitting time for my withdrawal. For some time past, increasing professional duties have prevented me from taking that active part in the conduct of affairs which is clearly due from an Editor. In justice, therefore, to our supporters, to my colleagues, and to myself, I consider that the best thing to do under the circumstances is to resign; and I do so, not only without reluctance, but with extreme pleasure, because, before taking this step, I am assured that a substitute for me has been found in our friend Douglas (in himself a world of insect-lore), who has consented to accept my duties and responsibilities: such an acquisition to the staff *must* meet with approval from all, as it is a guarantee that the Magazine will increase in value and interest. I need hardly add, that the Entomologist's Monthly Magazine will always have, as it has hitherto had, my heartiest wishes for its success.

H. GUARD KNAGGS.

Kentish Town, N.W.:
May, 1874.

The unavoidable retirement of my friend Dr. Knaggs having caused a vacancy in the joint Editorship of this Magazine, and it having been represented to me that I could not better serve the cause of Entomology than by taking his place, I cannot resist the solicitations of my friends to occupy the position of a member of the quadruple alliance. Like Cincinnatus, I had retired from active duty; recalled, I return to it, not like him as a dictator, but as a co-worker in the field I love,—*corde et manu.*

J. W. DOUGLAS.

15, Belgrave Terrace, Lee, S.E.:
May, 1874.

NE, 1874.

DESCRIPTIONS OF SOME NEW SPECIES OF THE GENUS *PACHYTRICHA.*

BY D. SHARP, M.B.

Among the many interesting and anomalous genera of *Coleoptera* that inhabit Australia, the genus *Pachytricha* is probably one of the most remarkable. Its satisfactory classification is a difficult point, and I think must yet remain so. Hope considered the genus allied to *Glaphyrus* and *Chasmatopterus;* Erichson considered it to be an ally of *Euchirus*, but afterwards changed this opinion, and placed *Pachytricha* among the group of Sericoid *Melolonthæ*, of which numerous genera are found in Australia, one or two in Western South America, one or two in New Zealand, and one in Europe. This group of Sericoid *Melolonthæ*, as established by Erichson, and adopted by Lacordaire, consists of a series of genera differing greatly one from another, and the association of which in one group does not satisfactorily express their differences and affinities. It must be admitted that *Pachytricha* in its general appearance, and in numerous points of its structure, differs much from all the other genera of the group; and, if we bear this in mind, and recollect also, that the other genera to which it has affinities, viz., *Glaphyrus* and *Euchirus*, are also very anomalous, and of difficult classification, I think we are warranted in concluding that we are here dealing with a genus which is less specialized than most of the other genera of Lamellicorn *Coleoptera*, and one therefore which is, perhaps, the little changed descendant of one of the more primitive forms of the family *Scarabæidæ.*

I have examined the position of the abdominal stigmata in the species characterized *infrà* as *P. minor*, and adjoin their description, as well as some points that have escaped observation in the anatomy of the genus.

Abdominal stigmata two, three, and four, similar in shape to one another, moderately large, very open, elliptical, stigma three rather larger than two or four. Stigmata two and three placed partly in the connecting membrane, and partly in the horny portion of the abdomen; stigma four placed just in the horny portion close to the membrane; stigma five placed also close to membrane, its position being similar to that of the fourth stigma, but it is smaller than that, though it is large and open. Stigma six is small and closed, scarcely quite so near the membrane as the fifth stigma, but yet very little distant therefrom. Stigma seven small, placed close to junction of the dorsal and ventral plates.

Prosternum furnished with an elongate narrow post-coxal process, which is extremely densely clothed with very long hairs.

Mesosternum produced between the middle coxæ, these placed closed to one another, and separated only by a thin lamina.

Posterior coxæ broader externally than internally; their upper margin oblique in its direction, their outer and hinder angles acute.

I have been so fortunate as to accumulate from different sources nine individuals possessing the characters of the genus; and, after carefully examining them, have concluded that these individuals are representatives of five different species; it appears, moreover, to me that none of these specimens can be referred to *P. castanea*, Hope, the only species of the genus hitherto described; I have, therefore, drawn up descriptions of these insects, and, in order to make the paper more complete, have copied and added to it the description of *P. castanea.*

These six species may be arranged in two sections, readily distinguished by the structure of the labrum, and which (if connecting links be not discovered) will, perhaps, ultimately be adopted as distinct genera.

SECTION I.

Labrum profunde (sed haud usque ad clypei marginem) emarginatum.

1. PACHYTRICHA MUNDA, *sp. n.*

Nigro-picea, suprà nitida, infrà dense pallide lanosa, elytris testaceis, antennis rufescentibus, prothorace dense punctato; tibiis posterioribus in utroque sexû minus incrassatis. *Long. corp.* 14 *lin.*

♂. *tarsis anterioribus, long.* 6 *lin.*

♀. *tarsis anterioribus, long.* 3½ *lin.*

Head pitchy-black, densely punctured. Thorax pitchy-black, shining, the sides densely punctured, the punctures being confluent and rugose; the front part is closely punctured, the back part more sparingly and indistinctly punctured; its breadth is nearly one and a half times its length, it has no hairs on its upper surface: scutellum pitchy-black, indistinctly punctured. Elytra testaceous, smooth and shining, without distinct punctuation. Pygidium pitchy, without hairs. Underside of the body quite woolly, being densely clothed with pale, soft, long pubescence. The last segment of the abdomen without pale hairs. Legs pitchy-black.

This species has been sent from Swan River by Mr. Brewer.

The two specimens of it before me differ from one another in several respects, and some of these differences are no doubt sexual. In the specimen which I believe to be the male, the legs are longer than in the other, the difference being most notable in the front tarsi, and the three teeth on the front tibiæ are less developed. The pygidium is more deflexed, and the apical segment of the abdomen is smooth and shining in the middle, while in the female it is finely punctured, each puncture bearing a fine yellow hair.

2. Pachytricha pallens, *sp. n.*

Nigro-picea, suprà nitida, infrà dense pallide lanosa, elytris testaceis, antennis rufescentibus, prothorace dense punctato.

Long. corp. 14 *lin.*

♂. *tarsis anterioribus, long.* 5½ *lin.*

♀. *adhuc incognita.*

The only individual of this species before me evidently belongs to the male sex; it is extremely similar to the male of *P. munda*, and differs from it as follows: it is a little narrower, and the elytra are shorter and more convex, the legs are more slender and a little shorter, the teeth on the front tibiæ are less developed, and the claws are notably smaller. The wool of the under-surface is not so long, and the abdomen is evidently more sparingly clothed.

North-West Australia: Mr. Du Boulay.

3. Pachytricha robusta, *sp. n.*

Picea, suprà nitida, infrà dense pallide lanosa, elytris castaneis, antennis rufescentibus, prothorace lateribus dense punctato.

Long. corp. 17 *lin.*

Of this very fine species I have but a single mutilated specimen before me; this individual, though it has lost all its tarsi, and the club of its antennæ, is, I think, a female, and there can be no doubt of its being a distinct species from *P. munda.* It is much larger, notably broader and more robust than that species, the punctuation of its thorax is not so dense, the punctures not being confluent except at the front angles, the labrum is longer and more prominent, the elytra are not so smooth, and are darker in colour, the pygidium is broader, and has a deep impression at its extremity, the hind tibiæ are more dilated at their extremity, the last segment of the abdomen is much broader and less conical in form; and the fourth and fifth joints of the antennæ are much longer than in *P. munda.* This character will probably offer an easy means of distinguishing the two species; for in *P. munda* the fourth joint is only about as long as it is broad, while in *P. robusta* it is much longer.

This specimen was named *Pachytricha castanea* in the collection of Mr. W. W. Saunders; but I find that it does not agree with Westwood's figure (*Trans. Ent. Soc.*, iii, pl. xiii, f. 4), and is, I have no doubt, a different species (I should judge Westwood's figure to represent a female). The only locality indicated for the specimen of *P. robusta* was "West Australia."

4. PACHYTRICHA CASTANEA, Hope (Trans. Ent. Soc. Lond., iii, p. 282, pl. xiii, f. 4).

"*Piceus, capite valde acuminato seu melius sub-cornuto. Thorax* "*antice utrinque spinosus, marginibus elevatis et punctatis. Scutellum* "*læve, postice rotundatum, piceum. Elytra castanea, postice acuminata,* "*podice triangulo deflexo brunneo. Corpus infrà valde pilosum ; capillis* "*cinerascentibus. Pedes picei et ciliati.*

"*Long. lin.* 15, *lat. lin.* 5½.

"*Habitat in Novâ Hollandiâ.*

"This remarkable insect is from Australia, and appears to be a "genus intermediate between *Glaphyrus* and *Chasmatopterus*."

SECTION II.

Labrum omnino fissum.

5. PACHYTRICHA TECTA, *sp. n.*

Castanea, nitida, capite pedibusque piceis ; prothoracis lateribus et parte anteriore fortiter punctatis, hoc etiam hirsuto ; tibiis posterioribus apice fortiter dilatatis. *Long.* 16 *lin.*, *lat* 7¼ *lin.*

Head pitchy, rather coarsely and closely punctured, with a space in the middle less punctured. Thorax shining, coarsely and rather closely punctured, except a large space behind, which is nearly impunctate ; the front part is clothed with rather long and scanty hairs. Elytra chestnut-yellow, very shining, and very nearly impunctate. Pygidium extremely finely punctured. Under-side densely clothed with woolly pubescence, except that the three or four apical segments of the abdomen are bare. Legs pitchy, the teeth of the front tibiæ much developed, hinder tibiæ strongly dilated at the extremity.

Of this species I have before me three specimens from Freemantle ; they present no evident sexual distinctions, and I suspect them to be all females. I have also another specimen, coming, I believe, from the more northern parts of Australia, which is considerably smaller and narrower than the Freemantle individuals, and has the tibiæ not quite so stout : whether it be the male of *P. tecta*, or only a small individual of the female sex thereof, I am unable to say.

6. PACHYTRICHA MINOR, *sp. n.*

Suprà castanea, subtus picea, sed dense lanosa, pedibus piceis ; prothorace æqualiter subtiliterque punctato, elytris obsolete punctatis, pygidio crebre asperato-punctato. Long. 12 lin., lat. 5¾ lin.

Head darker and more distinctly punctured than the rest of the upper-surface, with the line separating the clypeus from the front very distinct. Thorax of a chestnut colour, shining, rather finely and evenly punctured, the punctures, however, rather coarser, and more numerous at the sides and front angles than elsewhere; it is about one-third broader than long. Scutellum distinctly punctured, but with the sides and apex smooth. Elytra obsoletely punctured, the punctuation near the scutellum more distinct than elsewhere. Pygidium closely punctured, and furnished with fine hairs. Under surface with a thick woolly pubescence, except on the middle of the abdomen, where there is only a scanty pubescence. Legs pitchy, hinder tibiæ moderately dilated at the extremity.

I have seen only a single specimen of this insect, which comes from North-West Australia; its rough pygidium readily distinguishes it from the other species.

Thornhill, Dumfries:
26th March, 1874.

DESCRIPTIONS OF FIVE NEW LUCANOID *COLEOPTERA*.

BY CHAS. O. WATERHOUSE.

1. Prismognathus (*Cyclorasis*) angularis, *sp. n.*

♀. *Niger, nitidus. Capite pone oculos vix angustiore. Thorace sat crebre fortiter punctato, angulis anticis prominentibus. Elytris crebre sat fortiter irregulariter punctatis, lateribus subtilius obsolete punctulatis.* *Long.* 9 *lin.*

Closely allied to *P. platycephalus*, the head is, however, somewhat narrower; the neck being as it were swollen, the eyes are much less prominent than in that species, and the punctuation throughout is more distinct. The thorax is narrower, the anterior angles are very prominent, and the sides in front are less oblique; the punctuation is moderately close and strong. The elytra present some indications of longitudinal impressed lines; the punctuation is moderately strong and close, and somewhat irregular, considerably less close and distinct than in *P. platycephalus*, and the sides are slightly opaque, obscurely and very finely punctured.

Hab. Japan. Unique in coll. G. Lewis.

2. Dorcus binodulosus, *sp. n.*

♂. *D. Dehaanii affinis; niger, subdepressus. Mandibulis capite vix longioribus, arcuatis, apicibus acutis, ad basin suprà dente triangulari retrorsum directo. Capite sub-plano subtilissime granuloso punctis aspersis, genis pone oculos rectangularibus. Thorace depresso sub-

tilissime granuloso, lateribus marginibusque fortiter punctatis. Elytris sat nitidis, dorso distincte subtiliter striato-punctatis, interstitiis 1 *et* 3 *vix punctulatis; lateribus, basi, apiceque crebre fortiter punctatis.*
Long. 15 *lin., mandib.* 2½ *lin.*

This species is closely allied to *Dorcus Dehaanii.* As I have seen but a single example, it is impossible to give characters which will separate its larger developments from the allied species; the presence, however, of two very small tubercles on the forehead (which are separated from each other by a space a little greater than the width of the clypeus) will distinguish it from any specimen of the allied species which I have seen; the cheeks behind the eyes being prominent and rectangular, and the elytra punctured in striæ will also serve as distinctive characters.

Hab. Japan. Coll. G. Lewis.

3. FIGULUS INTERRUPTUS, *sp. n.*

Niger, nitidus. Oculorum cantho antice vix angulato. Thorace longitudine ¼-latiore, antice unituberculato, dorso lævi, longitudinaliter fortiter canaliculato, latera versus sat crebre punctato, lateribus subparallelis, angulis posticis late rotundatis. *Long.* 5 *lin.*

Somewhat resembles *F. lævipennis,* but by the form of the thorax belongs more to the second section of the genus. Head with the forehead concave, sparingly punctured, with four small tubercles, the posterior ones being very obscure; the canthus is scarcely angular in front, slightly rounded at the sides. The thorax is one-fourth broader than long, convex, shining, moderately thickly punctured towards the sides, the anterior margin with a distinct tubercle; the longitudinal channel is deep, and sparingly and obscurely punctured; the anterior angles are scarcely at all prominent, the sides are scarcely rounded, the posterior angles are much rounded. The elytra are convex, impressed on each side of the suture, twice the length of, but scarcely as broad as, the thorax; the striæ are nine in number, the second to fifth are strongly impressed at the base, gradually becoming less so towards the apex (which is smooth), and the punctures more apparent; the sixth (humeral) stria is lightly impressed at the base, and somewhat strongly so posteriorly; the seventh to ninth striæ are lightly impressed, distinctly and not very strongly punctured.

Hab. India. Coll. Brit. Mus.

4. FIGULUS NITENS, *sp. n.*

Niger, nitidus. Capite fere lævi, antice rufescenti, oculorum cantho rotundato. Thorace longitudine ¼-latiore, latera versus crebre punctulato, antice uninoduloso, in medio et utrinque inter puncta foveis tribus impresso; angulis anticis prominulis, lateribus parallelis; angulis posticis rotundatis. Elytris striis novem, 2–6 *fortiter impressis,* 7–9 *vix impressis, punctulatis.* Long. 5¼ lin.

Allied to *F. Manillarum*, but narrower, with less punctures on the thorax, and the ocular canthus rounded. Head almost invisibly and sparingly punctured; forehead concave with an obtuse tubercle on each side; the ocular canthus rounded. The thorax is convex, shining; the disc sparingly and extremely delicately punctured, towards the sides moderately thickly and strongly punctured, with a strongly punctured impression in the middle, and on each side there is a shallow impression among the lateral punctuation; the anterior angles are very slightly prominent and obtuse; the sides are nearly parallel, only very slightly narrowed posteriorly; the hind angles are rounded. Elytra a trifle narrower than, and twice as long as, the thorax, the striæ are nine in number, the second to sixth are strongly impressed (except at the extreme apex), the fifth and sixth only visibly punctured, the interstices are gently convex, moderately thickly but not strongly punctured; the seventh to ninth striæ are scarcely impressed, distinctly but not very thickly punctured.

Hab. New South Wales. Coll. Major Parry.

5. MITOPHYLLUS MARMORATUS, *sp. n.*

Niger, brunneo-variegatus, plumbeo-micans, squamulis flavis marmoratus; thorace lateribus pone medium angulatis, dein leviter emarginatis, angulis posticis rectis. Elytris fortiter irregulariter punctatis.

Long. 7 lin.

Closely resembles *M. Parrianus*, but easily separated from it by its being more convex than that species, and by the sides of the thorax behind the middle being gently emarginate, thus making the posterior angles rectangular. The thorax is thickly and very strongly punctured, with three smooth spots, two on the disc and one in the middle of the posterior margin; the anterior angles are very slightly prominent, the sides are strongly angular rather behind the middle. The elytra are scarcely broader than the widest part of the thorax, conjointly rounded at the apex, the punctuation is very strong and moderately close, but somewhat irregular; the yellowish scales, with which the insect is more or less covered, are shorter and broader than those in the allied species, and appear to be confined to the brown portions of the insect, leaving the blacker parts bare.

The male has the mandibles black, swollen at the base, with a deep reddish impression above, furnished also above near the apex with a strong tooth. The head is straight in front, with a strong tubercular projection in front of the eyes. In the female, the head is longer and narrower, the eyes are smaller and less prominent, and the projection in front of the eyes is much less. The mandibles are much more straight and simple, the apices very acute, and the tubercle above is very small and acute.

Hab. New Zealand. Coll. Brit. Mus.

British Museum: *May 7th*, 1874.

BRITISH *HEMIPTERA*—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

OCULATINA.

SALDIDÆ.

SALDA OPACULA.

Salda opacula, Zett., Ins. Lap. 268, 12, 8 (1840); Thoms., Opusc. iv, 407, 13 (1871); nec Fieb., Ent. Monats., vii, 62 (1863).

„ *costalis*, F. Sahlb., Geoc. Fenn., 152, 5 (1848); nec Thoms., Opusc. iv, 406, 10.

„ *marginalis*, H.-Schf., Wanz., ix, 130, t. 306, fig. 943 (*marginella* in tab.) (1833); nec Fall., Flor, Stål; nec *S. marginella*, Fieb., Eur. Hem., 145, 8.

Oval, black, with very short, fine, golden, silky pubescence. *Pronotum*—sides straight. *Elytra* dull; anterior margin regularly and narrowly testaceous throughout, except at the base; disc with long testaceous streaks, often obscure, and a posterior whitish spot.

Head shining; *clypeus*—margin much incrassated towards the sides, whitish; *face* whitish; *eyes* brown, large, much divergent posteriorly. *Antennæ* black, 1st joint broadly testaceous on the inner side. *Rostrum* piceous.

Thorax: *pronotum* shining, trapeziform, sides straight, flattened, anterior callus large, convex, with one small, deep, central fovea, the adjoining posterior furrow deep. *Scutellum* shining, spotless, a large wide fovea on the basal portion. *Elytra* dull; *clavus*—posteriorly with an elongate testaceous spot; *corium*—anterior margin flatly reflexed, especially at the base, and except the basal third and extreme apex, regularly linear-testaceous; exterior to the black middle nerve the colour is broadly irregularly testaceous, becoming narrow posteriorly, where, on the exterior black area is a distinct, elongate, whitish spot; beyond the nerve the colour is again broadly testaceous, interrupted in the middle, the basal part having a black, isolated dash giving the appearance of an ocellus, the posterior part clear; more inwardly is a slender, sinuate, testaceous line not extending to base or apex, followed by a spot of the same colour, and another similar spot is on the inner posterior angle: some or all of the markings on the inner half of the corium are sometimes obliterated; *membrane* testaceous with black nerves, and sometimes a small black spot between them. *Legs* testaceous; *thighs* internally with darker spots; *tibiæ* base and apex, *tarsi*, last joint, black.

Abdomen black, shining, with golden pubescence, the posterior margin of the last three or four segments pale testaceous. Length, 1¼ lines.

Several examples taken by Dr. F. Buchanan White, at Braemar, in 1871.

S. opacula, Zett., is erroneously cited as a synonym of *S. marginalis*, Fall., by Fieber, *l. c.*, by D. and S., Brit. Hem., i, 524, 6, and Stål, Œf. Vet. Ak. Förh., 391, 8 (1868).

S. marginalis, Fall., is distinguished by its more ovate form, and specially by the hamate mark on the inner side of the less regular pale margin of the elytra, as described in the "Brit. Hem.," *l. c.* In *S. opacula*, Zett., the yellow colour of the margin of the elytra is linear throughout.

SALDA PALUSTRIS, *n. sp.*

Broad-oval, deep black, finely punctate, densely clothed with decumbent black hairs mixed with delicate, short, golden pubescence. *Antennæ* black, 1st joint testaceous with brown or blackish spots, or externally black ; 2nd, testaceous towards the apex. *Pronotum*—sides slightly rounded. *Elytra* dull ; *clavus* with a spot towards the apex ; *corium*, anterior margin in the middle with a long line followed by a shorter one, two spots on the disc, and one in the posterior inner angle, the middle nerve with a line on each side, the ocellate spot indistinct,—all pale ochreous. *Legs* testaceous ; *thighs* black beneath, brown-spotted inside ; *tibiæ*—outwardly with a black line.

Head shining ; *clypeus* margin slightly incrassated, mostly testaceous ; *face* testaceous, thickly clothed with golden hairs. *Antennæ* black ; 1st joint testaceous, externally black (♂), or with blackish or brown cloudy spots (♀). *Rostrum* piceous.

Thorax : pronotum shining ; sides slightly rounded ; anterior callus moderate, with one central fovea, and in front and behind a row of close, deep punctures. *Scutellum* with a sub-basal and a posterior depression, posterior portion crenulate. *Elytra : clavus* shining, a small spot towards the apex ; *corium* dull, the black decumbent hairs giving a rastrate appearance, anterior margin at the base flattened, crenate, in the middle a long narrow line followed by a short one not extending to the apex, the two being often connected by a still finer marginal line ; on the disc nearly opposite the lower end of the long line is a longish spot, and posterior to it a small one ; in the posterior inner angle an oblique spot ; the usual ocellate ring faint and imperfect ; the middle nerve bordered, externally throughout by a very fine line, internally by a short broad one reaching to the posterior margin—all these markings pale ochreous ; *membrane* pale ochreous, nerves strong, black, a long fuscous spot in each cell, margin tinged with fuscous, but at the base, externally and internally, for some distance either wholly black, or with a basal pale line or spot. *Legs* testaceous, with black hairs and spines ; *thighs* beneath with a black line, inner side with brown spots ; *tibiæ* outwardly with a black line from the base, short and spot-like in the third pair, apex black or blackish, spines on the third pair longer and stronger ; *tarsi*, last joint with the apical fourth black.

Abdomen—beneath shining, densely clothed with pale golden or silvery pubescence.

Length, 1½—1¾ line.

Some examples are almost wholly black, but the pale, narrow marginal and middle lines of the corium are always more or less visible.

The species belongs to the *saltatoria* group, but cannot be cannot be confounded with any other. It has been seen by Drs. Fieber, Stål, J. Sahlberg, and O. Reuter, and is new to them.

I took one specimen on the shore at Southampton in September, 1863, and one at Bascombe Chine, near Bournemouth, in September, 1871 (E. M. M., viii, 137), and several were captured last autumn in a marsh at Hythe, near Southampton Water, among *Spartina striata*, by Mr. R. G. Keely, and kindly forwarded.

SALDA VESTITA, *n. sp.*

Broad-oval, brown-black, dull, densely clothed with fine, short, golden pubescence, and destitute of black hairs. *Antennæ* black, 1st joint testaceous, on the upper-side black; 2nd testaceous, more or less obscured. *Pronotum*—sides slightly rounded. *Clavus* with a posterior pale spot; *corium* at the base black, then, on the outer side, broadly ochreous, with a central irregular black spot, the light colour then narrow on the margin and again expanding as a long spot, interior to this a rounded pale spot; middle nerve black, posteriorly margined on each side with ochreous, a small spot *at* the inner angle, and one or two inwardly on the disc; *membrane* pale ochreous; nerves, a spot in each cell, and a large one near the apex of the outer cell, black. *Legs* testaceous, with dark lines and spots.

Head: clypeus—margin very slightly incrassated, ochreous or testaceous; *face* testaceous. *Antennæ* black, first joint testaceous, upper-side with a more or less distinct black line; second obscure testaceous, the basal two-thirds mostly blackish. *Eyes*, black clouded with brown. *Rostrum* testaceous or piceous.

Thorax: pronotum—sides slightly rounded, margin narrowly flattened, scarcely reflexed; anterior callus moderate, with one deep, central fovea. *Scutellum* finely punctured, sub-basal depression wide and deep, posterior half crenulate, the depression slight. *Elytra: clavus*—posteriorly with a longish, pointed, ochreous spot, mostly also with a narrow linear spot on the posterior margin; *corium*—anterior margin on the first half flattened, slightly reflexed, basal fourth black, then (except on the extreme edge) for more than one-third of the length ochreous, the colour extending inwards to the black middle nerve, and enclosing an irregular black spot, then continued (as a rule) narrowly on the margin, and widened into a quadrangular spot which does not reach the apex; on the disc opposite is an isolated, rounded, pale spot; middle nerve on the posterior half bordered on the outer-side narrowly, on the inner-side broadly, with ochreous; the usual ocellus distinct, its black centre long and narrow; between the ocellus and the clavus usually a short pale line, posteriorly on the disc two small, long spots, and one *at* the inner angle; posterior margin wholly black; *membrane* pale ochreous, nerves, and a long spot in each cell, black, margin outwardly shaded with fuscous, and, exterior to the lower end of the outer cell, a long black spot. *Legs* testaceous, with black hairs; *thighs* broadly black beneath, sides with brown spots in a line; *tibiæ* black at base and apex, first and second pairs with a long, black line on the outside; third, with fine, projecting, black spines; *tarsi*, third joint black, but on the third pair, the posterior half only.

Abdomen black, with golden pubescence on the under-side, the posterior margin of the segments narrowly whitish. Length, ♂, 1¾, ♀, 2 lines.

Several examples taken by Dr. Power, on the shore of Loch Leven in August, 1869 and 1870, and some, in the collection of Mr. T. J. Bold, by Mr. Hardy, in the Tyneside district.

The species belongs to the *saltatoria* group, and in the large exterior pale marking of the elytra bears some resemblance to *S. stellata*, Curt., but the form of the insect is longer-oval, and it is distinguished at once by the dulness of its surface, due to the dense pubescence, which peculiarity Dr. Power tells me struck him when he first saw his captures in his sweeping-net.

(*To be continued*).

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(*continued from Vol.* x., *p.* 247).

Carpocapsa juliana, Curt.—My friend Mr. H. Waring Kidd bred a specimen of this species a few years ago from the "artichoke" galls of the oak (galls of *Cynips quercus-gemmæ)*, but I think that this situation had only been selected by the larva for the purpose of spinning up. There is no evidence to show that the moth is in any sense an inquiline of the galls.

Carpocapsa nimbana, H.-S.—This is considered by Prof. Zeller and Dr. Wocke as a variety of *juliana*, but Herrich-Schäffer and Heinemann describe it as distinct. It has not been introduced as a distinct species in the Ent. Annual, but is merely noticed (Ent. Ann., 1870, p. 131) as *juliana*, var. The only specimens obtained in this country (as far as I am aware) were bred by Lord Walsingham from larvæ found hibernating in cocoons under moss or *beech* trunks in Buckinghamshire. Now, as *juliana* appears to be confined to *oaks*, and is rather widely distributed in this country, there seems to be considerable evidence in favour of the distinctness of the two species; I therefore append a description of *nimbana*.

Alar. Exp. 7 lines.

Head and palpi grey; eyes black; antennæ and thorax dark grey; fore-wings *slate colour to the* middle, thence greyish-brown with scattered ochreous scales; dorsal blotch white, triangular, extending not more than half across the wing; ocellus bounded by two broad steel-blue lines, and preceded by a black spot in the middle of the wing; costal streaks indistinct to the middle, distinct and white beyond; cilia shining, dark brown; hind wings purplish-grey; cilia whitish; abdomen iron-grey.

May be distinguished from *juliana* by the form of the fore-wings, which are rather more blunt at the apex than in that species, and by the short triangular dorsal blotch. In *juliana* this forms a long, curved triangle reaching nearly to the apex of the wing.

Carpocapsa splendana, Hübn.

Carpocapsa grossana, Haw.—According to my experience, this is a scarce species, certainly very far less common than *splendana*. If, as Wilkinson asserts, it is common among beeches, it must be in restricted localities.

Carpocapsa pomonella, Linn.—I see by a note in the "Zoological Record" that M. Laboulbène has stated in the Ann. Soc. Ent. France, that the larva of this species attacks *nuts*, and Mr. W. West, of Greenwich, tells me that he has reared the perfect insect from a larva which he found feeding in a walnut.

Carpocapsa funebrana, Tr.—M. Jourdheuille states in his calendar that there is a brood of the larva of this species in *May*, feeding in the *trunks* or stems—"tiges"—of plum. This mistake apparently arises from the fact that the larvæ remain unchanged in the cocoons which they construct in the crevices of the bark until the spring, remaining but two or three weeks in the pupa state.

He also says that *pomonella* has sometimes two broods, probably for a similar reason.

Grapholita albersana, Hübn.

Grapholita ulicetana, Haw.—Dr. Wocke substitutes *succedana*, Fröl. (the name by which it is generally known in Germany), but for what reason does not appear, Haworth's being decidedly the earlier name and entitled to precedence, unless, indeed, *asseclana*, Hübn., a still older name—which probably refers to this species—be adopted.

It varies much in different localities. The dull grey form so excessively abundant in this country, is comparatively scarce on the Continent, and, indeed, in many parts quite unknown, the species being represented by paler varieties. These also occur frequently in Norfolk in company with the grey form, and seem to become commoner in the north. In Lancashire, a handsomely marked whitish form, with rich dark ocellus, occurs among *Genista anglica*, and is placed in some collections as a distinct species under the name of *asseclana*. The most brilliant specimen of this variety that I have seen was taken last summer on one of the Scottish mountains by Dr. F. Buchanan White. But for the connecting links, it would have be difficult to believe that this was the same species as our grey southern insect. On the Irish coast very large grey specimens occur, having also a peculiar appearance, and in some places there is a dwarf unicolorous grey race, but all seem to be united by intermediate variations in size and colour. The size seems to depend in some measure on the food-plant, the smallest form being found among *Lotus corniculatus*, where there is no furze, while there are some indication that colour is also affected by the same cause, the brighter varieties being found frequently among *Genista anglica*, *Spartium scoparium*, and *Lotus*.

To add to the confusion of synonyms in which this species is involved, the common grey form has been described by M. Constant (Ann. Soc. Ent. France, 1865) under the name of *micaceana*. Specimens sent me by Mr. E. L Ragonot agree precisely with our insect.

Grapholita hypericana, Hübn.

Grapholita modestana, Wilk.—(*æmulana*, Schl.), already noticed in the genus *Catoptria* (Ent. Mo. Mag., Vol. x, p. 8).

Grapholita microgrammana, Gn.—Zeller says this flies among *Ononis*. It is still scarce in this country, but has been taken in Ireland by Mr. Birchall, at Folkestone, and a few specimens at Great Yarmouth on the sand-hills.

Grapholita Wimmerana, Wilk.—This appears to be distinct from *Wimmerana*, Treitschke, which is described by him as greyish-fuscous with *white* markings, and figured by Herrich-Schäffer of an olive-brown with long white costal streaks, and a distinct white ocellus. It is probable that both authors refer to the same species, but certainly not to ours, which has borne the name. Under these circumstances, Mr. Doubleday, in the last Supplement to his List, substituted Mr. Dale's MS. name, *maritimana*, and in this I should have followed him, but, in examining some types of Continental *Tortrices* received from Prof. Zeller, I find that the paler specimens of our insect agree precisely with types of *candidulana*, Nolck. This name must therefore be adopted, there being no figure or description published of *maritimana*, Dale.

Wilkinson's description is so good that nothing need be added to it, except that the colour is not so constant as he represents, there being considerable variation in the depth of the drab clouds and fuscous markings. Some examples taken by Mr. Howard Vaughan are nearly white. It is very possible that this variety may have been called *lacteana*, Tr., by Stephens; but *lacteana*, as figured by Herrich-Schäffer, has a blue-grey dorsal blotch edged with grey; the wings also are broader than those of *candidulana*, Nolck.

Grapholita pupillana, Clerck.

Grapholita citrana, Hübn.—M. Jourdheuille says "larva in the flowers of *Artemesia campestris*." This is one of the species which still exist on the ancient sea-sands of Brandon (now twenty miles from the sea). It is very common there, and seems to frequent *Achillea millefolium*.

Sphaleroptera ictericana, Haw.—Changed by Wocke to *longana*, Haw. This is Haworth's name for the ♀, and occurs six pages earlier in his work than that of the ♂, hence the change. This, however, seems rather a severe stretch of the law of priority.

(*To be continued*).

Notes on captures of Coleoptera near Llangollen and Manchester.—During the past year, I found near Llangollen *Lathrobium angusticolle* (under a stone on Griben Oernant); *Telephorus unicolor* and *fuscus*; *Balaninus villosus*, by beating; *Opilus mollis* under ash bark; and a few *Athous vittatus* by sweeping; and in the vicinity of Manchester, *Choragus Sheppardi*; *Haplocnemus nigricornis*; and a few *Cis vestitus*.—Joseph Chappell, 1, Naylar Street, Hulme, Manchester: *7th April*, 1874.

A brood of white-ants (Termites) at Kew.—Some time since, the Museum attached to the Royal Gardens at Kew received a portion of the trunk of the tree (*Trachylobium Hornmannianum*) that produces the gum copal of East Africa. Quite recently, this was found to be infested by a colony of white-ants, and living specimens of the insect (winged and in various apterous forms) were exhibited by Mr. Jackson, the Curator, at the last meeting of the Linnean Society, and of the Scientific Committee of the Royal Horticultural Society. Through the kindness of Mr. Jackson, I have been able to make a preliminary examination of the insect, and find it to be a species (not yet identified by me) of the genus *Calotermes* of Hagen. The winged examples (unexpanded) are somewhat over half-an-inch in length. It would probably be difficult to find anywhere in this country conditions more favourable to the development of white-ants than exist at Kew, and no place in which their ravages (if a colony were to be established) would be of greater consequence; it is to be hoped, therefore, that every precaution will be taken to avoid such a contingency. At present, the wood is enclosed in a glass jar, so as to afford an opportunity of observing the habits of the creatures, this being probably the first time that any species has been found alive in this country. In the south of France, two small indigenous species do considerable damage, and a small North American species *(Termes flavipes)* had at one time established itself in the hothouses of the gardens of Schönbrunn, at Vienna, principally infesting the tubs in which plants were growing. I know not if it still exist there. I hope, hereafter, to give additional notes on this interesting subject, and to be able to add the specific name of the species, if it be described.—R. McLachlan, Lewisham: 15*th May*, 1874.

P.S.—Since the foregoing notes were written, I have made a more extended examination of the insect, and think it to belong to an undescribed species. It is allied to *C. solidus*, Hagen, but is somewhat larger, darker in colour, and with a slightly different form of prothorax. The types of *solidus* are from children's collection, with, unfortunately, no indication of locality. In his Monograph, Hagen, when describing *C. brevis*, a species from Central and South America, speaks of two examples enclosed in copal. It seems to me scarcely probable that an American species should occur under such circumstances, and quite possible that these entombed individuals may be identical specifically with those now bred from the wood of the copal tree, for *C. brevis*, although decidedly different, is yet allied, and a minute examination of insects enclosed in copal or amber is always attended by uncertainty. Two erroneous names have been given for the Kew insect; firstly that of *Eutermes lateralis*, Walker (*cf.* Proc. Linn. Soc., May 7th, 1874), and *E. nemoralis (cf.* 'Nature,' No. 238, p. 57; probably a misprint, for there is no species of that name).—R. McL.: *May* 22*nd*, 1874.

Note on Aphelochirus æstivalis.—A specimen of this very interesting and rare Hemipterous insect was taken in the Bathampton Wick river (near Bath) on the 17th September, 1868, by E. C. Broome, Esq., and is now in the Local Natural History Collection of the Bath Institution. It is in the same condition (with rudimentary hemielytra, and destitute of wings) as the individual I took long ago at Eynsham.—J. O. Westwood, Oxford: *May*, 1874.

Eupitheciæ two years in the pupa state.—With reference to the note in the May number of this Magazine on *E. dodoneata*, I may state that my experience with *expallidata* is that more than half of the specimens I capture remain two years in the pupa. This happens continually, season after season.—John Hellins, Exeter: 14*th May*, 1874.

Note on Eubolia lineolata.—In my paper on *Eubolia lineolata*, I omitted to mention that in 1868 I had a spring brood of larvæ, all the moths from which appeared as a summer flight in July, except one specimen, which remained over the winter, and did not appear until May 20th, 1869.—Id.

Note on Rhopalocera from Africa.—I have just received a very fine specimen of *Papilio Antimachus* (the third) taken by Mr. Rogers at the Gaboon, and several new species of which it is too late in the month to send descriptions. There are two examples of *Pieris rapæ*, which it would puzzle the most microscopical species-maker to separate from ours.—W. C. Hewitson, Oatlands, Weybridge: *May*, 1874.

Confirmation of Dianthœcia albimacula as a British species, with description *of its larva, &c.*—On July 19th, 1873, I had the pleasure of receiving from Mr. Stainton five larvæ in different stages of growth, which had been found feeding on the unripe seeds of *Silene nutans* by Mr. H. Moncreaff; these I at once saw were a species of *Dianthœcia* new to me, and, on referring to an extract from the "Annales de la Société Entomologique de France" published in 1830, I found there an account of *albimacula* by M. Guenée, which seemed to suit them well; I would not, however' venture upon publishing the notes I made of them, until their identity had been established beyond doubt, and this has now been done most satisfactorily. Mr. Moncreaff has bred a specimen of *albimacula* as early as the 6th of May from the larvæ he collected last summer, by placing some of the pupæ in a warm room. We are now sure, therefore, that *albimacula* is a species which breeds in England. For some years it had been relegated to the list of reputed British species (though Stainton's Manual kept it in its place), until the announcement of its re-discovery in 1865, by the capture of a single specimen, which was sent to Dr. Knaggs for identification, as recorded in the 1st Volume of The Entomologists' Monthly Magazine, p. 237.

The larvæ I had, fed well on the *Silene nutans* that accompanied them, and soon ate out the contents of the capsules of which Mr. Moncreaff kindly sent a further supply, and when these dried up I found the three younger larvæ (two having already turned to pupæ) take very well both to *Silene inflata* and to *maritima*, and between the 14th and 25th of August they retired into the soil prepared for them.

The young larva when a quarter of an inch long is of a greenish-grey colour, and darker than it afterwards becomes; at this time it has pale dorsal and sub-dorsal lines; with a darker stripe along the spiracles, bounded above by a paler undulating line; some faint darker marks along the back indicate the rudiments of the future dorsal design; a pale stripe runs beneath the spiracles, and the belly is darker greenish-grey. At its next moult, when about three-eighths of an inch long, the ground colour is either a pale drab or pale ochreous-yellow with the design of dark grey or blackish diamond shapes and spots on the back tolerably distinct; and, when it has attained the length of about three-quarters of an inch, the whole pattern of its markings is (as usual) more clearly defined than at any other period, composed as they are of closely aggregated greyish or blackish atoms, which, as the larva grows, become more dispersed with increasing intervals of the ground colour between them; but in this clearly defined stage of marking the ground colour is yellowish-ochreous, the dorsal pattern consists of a somewhat ovate blackish spot at the beginning, followed by a diamond or pear-shape extending to the end of each segment; the front half of each of these pears or diamonds is rather bare of freckles within its outline, showing the ground colour there more or less, while the hinder part is filled up so as to look blackish, the anterior pairs of tubercular black dots show distinct on the clear unfreckled ground of the back, the hinder pairs of dots are often attached to the lateral angles of the diamond shapes, but not invariably so, though they are always touched by a blackish line of freckles that curves or festoons along from the hinder dot of one segment to the hinder dot of the next; beneath this is the sub-dorsal interval of clear and paler ground colour; and then come two broad and irregularly thickened stripes of freckles, which about the middle of each segment slope towards each other till they touch, then returning to their previous level; the ground in the space just below the point of contact is filled with freckles which partly surround the white spiracle outlined with black.

The larva, when full-grown, measures one and a quarter inches in length, is of moderate stoutness, cylindrical, with the head a trifle smaller than the second segment, which is in turn a little less than the third, the anal segment tapering a little behind: its ground colour now is pale ochreous or pale brownish-ochreous, the head is delicately freckled and streaked with dark brown down the front of each lobe, the second segment has a dark brown or brownish-grey plate through which the fine dorsal and broader sub-dorsal lines of ground colour are visible; on the rest the dorsal line can be faintly discerned as a fine thread of ground colour running through the dorsal blackish spots and ill defined pear-shapes that follow them, both front and hind pair of black dots are now equally distinct on the back of each segment, a similar dot is situated a little above each spiracle, which last is whitish faintly outlined with black; a patch of dark grey or blackish freckles anteriorly in the sub-dorsal region, and some broken patches of lines of freckles extending in curves to the spiracular region on each segment are now the only remains of the design mentioned in the previous stage; this change having been brought about by the scattering of the dark atoms which before were confined in lines; the belly and legs are of the ground colour.

As will be seen from what follows, there is considerable resemblance between this larva and some of its congeners, but to my eye *its* most striking characteristic is the *absence* of the *slanting streaks* or *chevrons* which *they* so generally have.

The pupa is little more than five-eighths of an inch long, stout in proportion, the wing, antennæ, and trunk cases projecting in a blunt point over the abdomen, which tapers off gradually; the abdominal rings are partly granulous; the colour of the thorax and wing cases is deep reddish-brown, the abdomen dark brown.

M. Guenée has observed of the larva of *albimacula* that "in a manner it resembles that of *capsincola*, and when they are together on the same plant they "afford fine exercise for the eyes to distinguish them."

"It is found upon *Silene nutans*, and sometimes, but much more rarely, on "*Silene inflata*. In captivity it accommodates itself well to these two plants, also "to *Lychnis dioica*."

"This caterpillar is not rare where *Silene nutans* grow, that is to say in the arid "and hilly places of certain woods."—WM. BUCKLER, Emsworth: *May* 11*th*, 1874.

Cosmopteryx Scribaïella bred.—Professor Frey of Zurich, writes to me that on the morning of the 25th April, he bred nine specimens of *C. Scribaïella!*

Last September he had suggested to Herr Boll of Bremgarten, that he should search the reeds *(Arundo phragmites)* in that neighbourhood for the chance of finding larvæ of *Cosmopteryx Lienigiella*. Herr Boll found some mines in September, and thereby Professor Frey was himself attracted to Bremgarten; and he and Herr Boll, early in October, found these mines on the reeds very common along the banks of the Reuss, and they could have collected them by hundreds in a day. Being, however, firmly convinced they were only collecting the already well-known larva of *C. Lienigiella*, they soon desisted from collecting more, and now *C. Scribaïella* has been bred from these reed-miners.

Descriptions of this insect will be found in the Stettin. Entomolog. Zeitung, 1850, p. 197; in Herrich-Schäffer, V. p. 284, fig. 998; in the Transactions of the *Entomological Society* of London, 3rd Series, Vol. I. pp. 642, 645, and 654. It will be sufficient here to remind the reader that in *Scribaïella* the ground colour of the anterior wings is brown, with three slender longitudinal silvery streaks in the basal portion of the wing (in that respect resembling *Lienigiella)*, and that the outer margin of the dark yellow central fascia is ruptured a little above the middle of the wing, and the orange-yellow colour protrudes through it.

It was only on the 2nd of April this year, that I received, through M. Ragonot, a specimen of this insect for determination, which he had found among some *incognita* captured by M. Constant, of Autun, and the sight of this led me to hope that ere long the larva would be discovered, but I little expected I should record its discovery so soon.—H. T. STAINTON, Mountsfield, Lewisham; *May 6th*, 1874.

Eudorea coarctalis hibernating.—Is it generally known that the *Eudoreæ* hibernate? On the 20th of April I took two specimens of this species on Farrington moss near here; this is an August species with us. May not the *Crambus ocellea* that have been taken near Liverpool during the early months of the year have hibernated, and ought to have been looked for in August or September? I ought to add that the hibernated *coarctalis* were females.—J. B. HODGKINSON, Preston: *May*, 1874.

Early appearance of Catoptria aspidiscana, &c.—The very hot weather preceding the 2nd of May, tempted me to pay a visit to my old hunting grounds at Grange-over-Sands and Witherslack. The day, with a cold wind from the north, was not a very likely one for captures; however, in a snug sheltered corner with a fair amount of sun, I made a tolerably good bag of wood whites, brimstones, speckled woods, duke fritillaries, argiolus blues, and orange tips, and saw three of the common whites quite busy enjoying the warmth. As I was eagerly watching for some small fry to appear, up crept two moths out of the roots of the golden rod at my feet; I netted both at once—two *aspidiscana*, both males. I walked up and down for four hours, and took five more males and one female in beautiful condition. I may here note they are not to be trusted long in a pill box without damaging themselves, so I chloroformed them at once, and pinned them. There was nothing else of note out. *P. Lewenhoeckella*, *Dicrorampha plumbana*, a few *Lithocolletes*, also *Cemiostoma laburnella*, and an *Elachista*, which must be a new one: it is certainly not *nigrella*, the antennæ are so thick, and the wings are covered with thicker scales than any of the others that I know. In the same place I got some *Coleophora* cases which are quite new to me, not unlike or rather between *viminetella* and *nigricella;* much larger than the latter. I expect they will be *orbitella.* They are feeding on the mountain-ash. Journeying on a few miles to Witherslack, I spent two more days, and scarcely saw an insect. The weather being bitterly cold, only *E. indagata*, *P. variata*, *Incurvaria Zinckenii*, *Phoxopteryx uncana*, *Gracilaria aurogutella*, and a few *Nepticulæ* turned out, or rather I made them do so with hard beating; a few larvæ of *Pterophorus tephradactylus* on the golden rod in shady places where their presence may easily be seen; they strip the leaves quite as much as a large *Noctua* larva or a snail does. Among the shoots of mountain ash I got a good number of *Argyresthia spiniella*, and a few more *Coleophoræ*, the same as at Grange. A lot of *Laverna rhamniella*, and some young *S. signatana* larvæ, and some *T. Verhuellella* off the ferns closed up my journeying. I may except *Nola cristulalis*, which, as usual, was sitting head downwards. I never saw this earlier than 20th May.—ID.

Obituary.

Dr. Herrich-Schäffer.—We announced with great regret on the wrapper of our last number the death of Dr. Gottlieb August Herrich-Schäffer, of Ratisbon, on the 14th April.

Dr. Herrich-Schäffer was born in 1799, and till 1871 retained all the activity of a younger man; but in that year he had two paralytic strokes, from the effects of which he never thoroughly rallied, and latterly, he had been afflicted with softening of the brain, and his case had been for some time considered perfectly hopeless.

Dr. Herrich-Schäffer was an hereditary entomologist; his grandfather, Dr. J. C. Schäffer was a voluminous writer on insects from 1752 to 1779, and is perhaps best known by his "Icones Insectorum circa Ratisbonam," a quarto work with one hundred and eighty coloured plates.

Dr. J. C. Schäffer's son, the father of Herrich-Schäffer, contributed fifty pages on "Insecta" to a medical work on Ratisbon, and thus just obtained a place in Hagen's Bibliography; but the labours of the grandfather were quite eclipsed by those of the grandson whose loss we now deplore.

Herrich-Schäffer, born in 1799, obtained his Doctor's degree in 1821, and in the same year appeared his first entomological publication, "De generatione insectorum partibusque ei inservientibus," and eight years later we find him occupied with a continuation of Panzer's "Fauna insectorum Germaniæ," which continued to appear till 1844.

In 1836, he commenced a continuation of Hahn's "Wanzenartigen Insecten," which continued till 1853. His great work was, however, the "Systematische Bearbeitung der Schmetterlinge von Europa," intended as a supplement and completion of Hübner's "Sammlung europäischer Schmetterlinge." This work, commenced in 1843 and continued to 1856, is in six volumes quarto, with six hundred and seventy-two plates, of which six hundred and thirty-six are coloured. It is a real monument of labour and industry. From the year 1847 forwards, he was a very frequent writer in the "Correspondenzblatt des zoologisch mineralogisch Vereins in Regensburg." In 1861 he started a monthly periodical exclusively for entomology, "Correspondenzblatt für Sammler von Insecten insbesondere von Schmetterlingen," and of this he wrote nearly the whole. In addition to all his literary productions, he was a keen practical collector, and made frequent visits to the Swiss Alps, and rarely failed to attend the annual meetings of German Naturalists.

In Ratisbon he was in busy practice as a Physician, and in 1871, on the occasion of the celebration of the fiftieth Anniversary (Jubilee) of his obtaining his Doctor's degree, he was presented with the freedom of his native city.

Dr. Herrich-Schäffer visited England in 1851, attracted hither by the fame of the Great Exhibition.

Thomas John Bold.—It is with the most sincere regret that we chronicle the loss of this well-known British entomologist, who died, after a short ailment, at his residence, Long Benton, near Newcastle-on-Tyne, on the 5th ult., in the 58th year of his age. He died in harness (though labouring for more than seven years under paralysis, which deprived him of the power of locomotion), being actually engaged at the time of his decease upon a catalogue of the *Tenthredinidæ* of the Northumbrian district, and having published some observations in this Magazine so late as the 7th March last. As an entomologist, his name is familiar to those of the present and last generations (with all genuine workers of which he corresponded), since he never ceased from the task of recording and elucidating the insect-fauna of his district for thirty years before his death, and his notes on the habits, &c., of insects of all orders are scattered over the pages of the Transactions of the Local Societies to which he belonged, of the "Zoologist," and of this Magazine (in the latter, no less than fifty-six in number). The "Catalogue of the Insects of Northumberland and Durham, *Coleoptera*," published by Mr. J. Hardy and himself in the Transactions of the Tyneside Naturalists' Field Club, 1852, was, however, the first of the more important works with which his name will be connected, and which are not the least valuable of the services which that Society (perhaps the best of all British Local Associations) has rendered to practical science. Mr. Bold from time to time in 1864, 1865, and 1867, published various corrections and additions to this list, and finally, in 1871, in the Natural History Transactions of Northumberland and Durham, Vol. iv, entirely reconstructed it; following it up with a similar catalogue of the *Hemiptera-Heteroptera* of the district, and a list of the *Homoptera* new to Northumberland. He also carefully investigated the *Heterogyna, Fossores*, and *Anthophila* of the same district, and was collecting literary and other materials for a similar elaboration of the *Ichneumonidæ*. Although not a descriptive Naturalist (only two species founded by him occur to us: *Macrocoleus Hardyi* in *Hemiptera*, and *Scymnus lividus* in *Coleoptera)*, we are practically indebted to him for the addition to the British fauna list of *Pompilus melanarius, Passalœcus monilicornis*, and *Strongylogaster filicis (Hymenoptera)*, and *Anchomenus 4-punctatus, Bembidium Fockii, 4-signatum, obliquum*, and *Schuppelli, Haliplus varius, Colymbetes dispar, Phytosus nigriventris (balticus), Aleochara villosa, Tachyusa carbonaria, Mycetoporus longulus, Bryoporus castaneus* (practically a new species), *Platystethus capito, Meligethes brunnicornis, Cryptophagus badius, fumatus, dentatus*, and *validus, Ephistemus globosus, Anommatus* 12-*striatus, Aphodius fœtidus*, and *Blaps mortisaga (Coleoptera)*.

Mr. Bold was born near Tanfield, Durham, in September, 1816, and from his 18th year resided in or near Newcastle, being engaged in the seed trade. In retirement, he taught himself French, Latin, and German enough for entomological purposes, and gradually acquired a working library of works in those languages. He was indefatigably industrious, of a generous disposition, ever ready to assist others, and incapable of enduring a "sham," or the appearance of insincerity. The work of a local faunist, humble enough in comparison with higher aims, was nevertheless ennobled by him, for he did it with his whole heart, and did it well: nor was his genuine worth unnoticed in his own country, for he was Vice-President of the Tyneside Naturalists' Field Club, Associate and Honorary Entomological Curator of the Natural History Society of Northumberland, &c., and Honorary Member of the Literary and Philosophical Society of Newcastle. It is to be hoped that those Associations may find a successor able and willing to complete the work he had so well carried on, and so nearly completed.

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS OF NEW SPECIES (No. 17).

(Resumed from vol. ix, *p.* 52.*)*

BY H. W. BATES, F.L.S., &c.

Sub-family CARABINÆ.

NEBRIA LEWISI, *sp. n.*

N. lividæ (L.) affinis, at minor et gracilior. Elongato-oblonga, ochraceo-fulva; collo, thoracis disco, plagaque magna elytrorum discoidali communi, et pectore, nigris; thorace longius cordato, angulis posticis productis, acutis; elytris interstitio tertio impunctato, quartoque apice valde elevato. *Long.* 5½ *lin.*

Smaller and more slender than *N. livida;* in colour it differs in the head having only the broad neck, up to the posterior margin of the eyes, black; in the thorax having its whole central part of the same colour, leaving the lateral borders pale; and in the elytra being pale, with a large rounded black patch behind the middle, continued sometimes along the suture to the base. The thorax differs in form in being longer and less transverse, with the posterior narrowing much more gradual, and the hind angles more turned outwards; the borders are punctured in a similar way. The elytra are quite parallel, and with shoulders quite as well marked as in *N. livida*, but the striæ are finer and more sharply scored, finely punctulate in their bottom, and the interstices show no punctuation. Beneath black, with the apical part of the abdomen tawny.

Kawatchi, Japan. Sent home by Mr. G. Lewis's native collector.

NEBRIA ELLIPTIPENNIS, *sp. n.*

N. intricatæ affinis, sed magis elongata, elytris elongato-ellipticis sericeo-opacis, striis vix punctulatis. Elongata, piceo-nigra; capite ut in N. intricata, sed oculis paulo minus prominulis; thorace cordato, postice gradatim angustato, angulis posticis retrorsum spectantibus; elytris sericeo-opacis, humeris fortiter rotundatis, medio parallelis, supra striatis, striis vix punctulatis. *Long.* 7 *lin.* ♀.

Nearest resembling *N. intricata*, at least in the form of the head and thorax, but the elytra more elongated, with much rounder or more effaced shoulders and with striæ almost simple, a fine punctuation showing only under the lens. The colour is black, rufescent pitchy beneath, and with sub-opaque silky elytra. The head has a red spot on the crown, and is punctulate and rugulose; the eyes are moderately prominent, and the neck is not narrowed. The palpi are pitchy-red. The thorax is rather more cordate than in *N. intricata;* the anterior angles are moderately produced and acute; the posterior angles are not at all turned outwards, but are prolonged posteriorly, so that the base appears strongly quadrate-emarginate. The elytra are elliptical rather than oblong, and are not dilated posteriorly; the interstices are very slightly convex, the third having three punctures, and the fourth is carinated at the apex.

Kurdistan.

I have failed to find any description by Falderman, Chaudoir, Fischer and others, that applies in any degree to this species.

NEBRIA CRASSICEPS, *sp. n.*

Magna, elongato-oblonga, depressa, nigra, subsericea; capite magno, exserto, collo crasso, convexo, oculis parvis, haud prominulis; thorace transverso, postice fortiter sinuatim angustato, angulis omnibus acutis; elytris punctulato-striatis, humeris obtusis. *Long.* 9 *lin.*

Allied to *N. Marchalli*, the head and thorax being of similar form; but the general form is more elongate and oblong, with perfectly oblong elytra, and the colour is black. The head is large, and very long and thick behind, with small flattened eyes; and its surface is very finely punctulated. The thorax is much shorter and broader than in *N. Marchalli;* the anterior angles are remarkably produced, almost as much as in *N. dilatata;* from the middle, the sides are strongly sinuate-angustate, with out-turned and acute posterior angles and nearly straightly truncated base; the lateral margins are broadly explanate, with the marginal rims thick and raised. The elytra are oblong, quite parallel, from the obtuse but distinct shoulders to near the apex, and distinctly punctate-striated; there are no distinct punctures on the third interstice, and the fourth is not carinated at the apex.

Kurdistan.

Sub-family OZÆNINÆ.

OZÆNA MAGNA, *sp. n.*

Maxime elongata, anguste parallelogrammica, nigra, nitida; antennis brevibus, crassis, sub-compressis, nudis, nitidis, grosse punctatis, articulis 7–10 *intus foveâ,* 11*mo marginibus, minute porosis; thorace paulo transverso, quadrato, postice sinuatim paulo angustato, angulis posticis fere rectis, suprà cum capite sparsim punctato; elytris omnino parallelis, fortiter punctulato-striatis, interstitiis omnibus sparsim punctulatis; femoribus anticis* (♀) *haud dentatis.* *Long.* 9½ *lin.* ♀.

I place this and the following species in the restricted genus

Ozæna, almost solely on account of the naked antennæ; in the length of these organs they differ much from *Ozæna*, as defined by Baron Chaudoir, the proportion being scarcely one-third the length of the body, whereas in *Ozæna* it is more than one-half. The absence of the usual porosity of the antennal joints (from the 5th to the 11th) seems to me a much more important character, and in this they agree with *O. dentipes*, and differ from all other genera of the group. *O. magna* also has a pencil of hairs on the back of the maxillæ near the tip, which does not exist in *Pachyletes*. The palpi are short and thick, with the apical joints dilated. The porosity of the antennæ exists in *O. magna* in a very concentrated state, being confined to a very small pit on each surface of the 7th to the 10th antennal joints near their compressed inner edge, and to the bevelled margins of the large ovate terminal joint.

The whole insect is deep glossy-black; the head and thorax sprinkled with fine distinct punctures, and the latter also transversely wrinkled. The form of the thorax is transverse cordate-quadrate, with the lateral sinuation well marked, and the hind angles turned outwards, but not acute, being scarcely rectangular. The eyes are very prominent, and the head narrowed to a neck almost immediately behind them.

Saõ Paulo de Olivenca; Upper Amazons. One example, which flew at night to a light in my chamber.

OZÆNA BREVICORNIS, *sp. n.*

Anguste parallelogrammica, elongata, nigra, nitida; antennis brevibus, crassis, glabris, punctatis, articulis 6–10 *brevissimis et latissimis,* 9–10 *foveis* 11 *margine, porosis; thorace transversim quadrato-cordato, postice haud sinuato, angulis obtusis, haud prominulis; elytris fortiter punctulato-striatis, interstitiis omnibus sparsissime punctulatis.*

Long. 8 *lin.* ♀.

Differs from *O. magna* in the antennæ being shorter, and the joints 6 to 10 much broader and shorter. The thorax also differs in the hind angles not being recurved outwards, nor preceded by a sinuation of the sides. The thorax and the interstices of the elytra have fewer fine punctures.

Peru; one example.

The above-described species are further distinguished from *Pachyteles*, *Scythropasus*, &c., by the simple large emargination of the anterior tibiæ, without projecting upper lobe or tooth, and by the presence of a narrow grooved mesosternum between the middle coxæ, *the metasternum* projecting in a very long narrow process.

PACHYTELES SETIFER, *sp. n.*

P. filiformi proxime affinis, at elytris triseriatim setosis differt. Elongatus, linearis, castaneo-fuscus, antennis basi, oris partibus thoracisque margine rufo-castaneis; pedibus, sutura margineque elytrorum paulo pallidioribus; elytris utrinque setis longis in seriebus tribus ordinatis. *Long.* 5½ *lin.*

Of the same narrow linear form as *P. filiformis*, Casteln. Head and antennæ of similar form and proportions; thorax quadrate, slightly narrowed behind, but without the sinuation visible in *P. filiformis*, the narrowing being straight to the tip of the hind angles, which project beyond the basal line of the thorax; the sides anteriorly bear a number of setigerous punctures: the surface is faintly wrinkled. The elytra have extremely fine puctulate striæ, and the 1st, 3rd, and 5th interstices bear each a line of very long erect hairs, which are particularly numerous on the 3rd, reaching from base to apex.

Macas; Equador (Mr. Buckley).

PACHYTELES GONIADERUS, *sp. n.*

Oblongus, fulvus, nitidus; thorace lato, postice valde angustato, angulis anticis longe productis, acutis, posticis rectis, lateribus late explanatis; elytris striatis, interstitiis alternis convexis tertio et quinto punctatis, cæteris lævibus. *Long.* 4 *lin.*

In general form much resembling *P. lævigatus*, Dej. The thorax is very similar, differing chiefly in the much more produced anterior angles, which are a little turned outwards. The fine punctulated striæ of the elytra are nearly the same, but owing to the strong elevation of many of the interstices, they seem much more deeply sunk, and on the sides (which are sericeous-opaque) they are irregular. The antennæ are decidedly longer, owing to the more oblong form of its joints.

Ega.

PACHYTELES UNDULATUS, *sp. n.*

Oblongus, testaceo-rufus, nitidus, elytris disco fuscis; thorace transverso, angulis anticis productis acutissimis, posticis acutis, lateribus undulatis, suprà sparsim grossissime punctato; elytris usque ad marginem grosse punctato-striatis. *Long.* 3 *lin.*

Differs from *P. goniaderus* by the large punctures sparingly scattered over the otherwise glossy, smooth thorax, and by the undulated lateral edges, which form at irregular intervals distinct angles; the edge is markedly sinuated close behind the sharp anterior angles;

the posterior angles are also sharp and project a little outwards, the hind margin being straight. The elytra are rather strongly punctate-striate, even to the lateral margins, where there is no smooth sub-opaque space; most of the interstices are convex, and the third has a row of fine setiferous punctures.

Ega.

PACHYTELES FUSCULUS, *sp. n.*

Castaneo-fuscus, sub-nitidus; capite angustiore, oculis parum prominulis; thorace transverso, cordato, angulis anticis rectis, posticis acutis, suprà transversim strigoso; elytris fortiter punctulato-striatis, interstitiis plus minusve punctatis, striis apud latera confusis. *Long.* 3½ *lin.*

Differs from *P. lævigatus*, *granulatus*, and allies, by the less prominent eyes, in which it exactly resembles *P. marginicollis* of Chili. The general colour is uniform chestnut-brown, the elytra having no trace of other colour; but the head is blacker and the legs redder. The anterior angles of the thorax are not in the slightest produced, but they form a very pronounced rectangle. Nearly all the interstices of the elytra have a row of conspicuous punctures.

Ega; Amazons.

PACHYTELES TAPAJONUS, *sp. n.*

P. lævigato (Dej.) *proxime affinis, differt solùm thorace latiori, elytrisque fortius punctulato-striatis.* *Long.* 3½ *lin.*

Of the same oblong form as *P. lævigatus*. Chestnut-red; head behind blackish, disc of each elytron dusky-brown. Thorax transverse, quadrate-cordate, anterior angles very slightly prominent, sides slightly incurved behind them, thence rotundate-dilated (slightly undulated), behind rather strongly sinuate-angustate, hind angles rectangular; disc smooth. Elytra with well marked punctulate striæ, interstices slightly convex, 3rd and 5th with a few fine setiferous punctures, sides sericeous-opaque. The antennæ are moderately short and thick, as in *P. lævigatus*.

R. Tapajos; Amazons.

PACHYTELES PERUVIANUS, *sp. n.*

P. lævigato simillimus, at paulo angustior et obscurior, elytris distincte striato-punctulatis. *Long.* 3¾ *lin.*

The colour of the upper surface is chestnut-brown, with the head behind blacker, but the thorax not reddish as in *P. lævigatus* and *P. Tapajonus;* the elytra too have not the distinct reddish sutural border, the extreme sutural margin only being rather pale. The head and antennæ show no difference from *P. lævigatus*. The thorax also is precisely similar, being quadrate-cordate, with sharp anterior and posterior angles, the former very slightly produced with a sinuation in the sides behind them. The elytra are narrower, and more parallel; with rows of fine punctures, not distinctly impressed in striæ, and interstices perfectly plane and not so glossy as in *P. lævigatus;* the 3rd and 5th interstices have a few inconspicuous punctures.

R. Huallaga; Peru (Mr. Bartlett).

PACHYTELES SULCIPENNIS, *sp. n.*

P. granulato affinis; thorace glabro grosse sparsim punctato differt. Convexus, castaneo-rufus, nitidus, capite postice fusco; elytris omnino profunde sulcatis, sulcis fundo punctulatis, interstitiis convexis nitidis, plerumque seriatim punctatis. *Long.* 3¼ *lin.*

The head, as in *P. granulatus*, is strongly constricted behind the eyes; the bottom of the constriction is rugose, and the convex middle of the forehead smooth. The thorax is transverse-quadrate, not so much narrowed behind as in *P. lævigatus* and allies; all the angles nearly rectangular, the sides slightly sinuated behind the anterior angles, and their edges undulated; the surface is sprinkled throughout with large round punctures. The sulci of the elytra are deep even on the sides and up to the wheal at the apex of the elytra; their punctuation crenulates the sides; but the summits of the interstices are glossy and smooth, with a row of punctures on most of them.

Ega. This species must be nearly allied to *P. distinctus* (Chaud.), but that is described as having the thorax "ad latera tantum nonnihil punctatus."

PACHYTELES ASPERICOLLIS, *sp. n.*

Elongato-oblongus, castaneo-rufus, elytris nigris politis; capite et thorace elytris plus quam dimidio angustioribus, densissime scabrosis opacis, hoc lateribus multidentatis; elytris punctulato-striatis, interstitiis planis. *Long.* 3½ *lin.*

A remarkable species, somewhat resembling *P. granulatus* in the sculpture, but not in the form of the thorax, which is narrow, subcordate, narrowed only near the base; its anterior angles are much produced forward and acute, its sides are scarcely rounded and dilated, and present a series of three or four dentiform projections with corresponding sharp notches, and the whole surface is densely sculptured and clothed with erect hairs. The head is similarly sculptured from the neck to the epistome, and the usual depressions are not visible. The antennæ are moderately short and densely setose. The elytra are glabrous and shining, with regular punctulate striæ, and perfectly plane interstices, the 3rd and 5th of which have a row of minute setiferous punctures. The anterior thighs have a strong broad tooth beneath.

Tunantins; Upper Amazons.

PACHYTELES FULIGINELLUS, *sp. n.*

P. Gyllenhalii (Dej.) *proxime affinis. Omnino fuligineo-niger, breviter setosus; thorace quadrato, basin versus parum sinuatim angustato, angulis anticis acutis, posticis rectis; elytris punctulato-striatis, interstitiis plerumque convexis.* *Long.* 2½ *lin.*

Differs from *P. Gyllenhalii* almost solely in the sooty-black colour of its whole upper-surface and limbs; the under-surface being rufo-piceous. Above, the body is covered with short erect setæ implanted in fine punctures. The head has a few large scattered punctures. The thorax has extremely narrow lateral margins and is very little rounded anteriorly, and narrowed only very near the hind angles. The elytra have the punctured striæ more deeply sunk, or, rather, the instertices more convex.

Chontales, Nicaragua.

Bartholomew Road, Kentish Town, N.W.:
May, 1874.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(*continued from p.* 15).

Cnephasia cinctana, Schiff.—Dr. Wocke removes this from the *Cnephasiidæ*, placing it in the genus *Lophoderus*, near to *ministrana*, L.

Cnephasia hybridana, Hübn.—Heinemann seems to have fallen into an error here, in which Prof. Zeller is inclined to follow him. They both refer our *hybridana* to *albulana*, Tr., and call a closely allied straw coloured species *hybridana*. Hübner does not confirm this, as his figure of *hybridana* represents a grey example of our insect. Moreover, Dr. Wocke quotes *curvifasciana* and *rectifasciana* of Haworth and Stephens as synonyms of *hybridana*, Hübn., and they are without doubt the ♂ and ♀ of our species. This has been confirmed by M. Guenée, to whom Mr. Doubleday sent specimens.

Wocke removes *hybridana* into the genus *Olindia* (with *ulmana*), and makes *albulana*, Tr., a variety of it. If this be correct, the variation is very extraordinary. The other species of the genus *Cnephasia* (with the exception perhaps of *nubilana*) are so deeply involved in difficulty from the extraordinary manner in which they appear to run into one another, and the extreme difficulty of deciding which *are* species and which merely local varieties, that I think it best to defer any detailed notice of them for the present, in the hope that some satisfactory conclusions may be arrived at in the future. Of this there is the greatest probability, since the investigations of Dr. Ottmar Hoffman (translated by Mr. Stainton in the Ent. Ann., 1873, p. 50) seem to point to reliable *structural* characters separating the species. It is satisfactory to find that, as far as they have gone, his observations seem to confirm the distinctness of the most puzzling allied species, and to condemn Dr. Wocke's method of getting through the difficulty by putting most of them together under the name of *Wahlbomiana*, Linn.

As Mr. Doubleday has added this name and that of *abrasana*, Dup., to the latest Supplement to his List, it may be well to say that *Wahlbomiana* appears, as far as I can judge, to be the longer winged form, common on some parts of the coast as well as occasionally inland, which has hitherto been placed with *subjectana* or *virgaureana*, or called incorrectly by the name of *pasivana*, Hübn.

Abrasana, Dup., is a nearly unicolorous pale grey insect larger and paler than *nubilana*.

Ablabia pratana, Hübn.—Wocke substitutes *osseana*, Scop., as an earlier name.

In this family Dr. Wocke places two rather anomalous species which are not included by Wilkinson in his work: *Tortricodes hyemana*, Hb., which he changes to *tortricella*, Hübner's earlier name for the ♀; and *Exapate gelatella*, Linn., which he changes to *congelatella*, Clerck.

Euchromia arbutella, Linn.

Euchromia fulvipunctana, Haw.—Corrected by Mr. Doubleday in his List to *flammeana*, Fröl., but now again altered by him, as well as by Dr. Wocke, to *Mygindana*, Schiff., a still earlier name.

Euchromia purpurana, Haw.—Dr. Wocke sinks this species as a variety of *rufana*, Scop., but I am decidedly of opinion that they are distinct, the fore-wings in this species being narrower in proportion to their length than in *rufana*. Mr. Doubleday in the last Supplement to his List adopts this view.

Euchromia rufana, Scop.—Recorded as British, but not described, in the Ent. Ann., 1864, p. 126, having been taken rather freely by Mr. Hodgkinson in Cumberland. I append a short description.

Alar. exp. 8 lines.

Head and thorax reddish; palpi paler; antennæ dark grey; fore-wings greyish-brown entirely reticulated with dark crimson scales, which give the insect a reddish-brown appearance; hind-wings pale grey; cilia whitish, with a grey line near the base. ♀ darker, the fore-wings being reticulated with olive-brown scales; hind-wings dark grey.

A variety of an olive-grey colour with reddish cilia seems not uncommon.

Some time ago, Mr. Hodgkinson obligingly sent me a number of living specimens, which, from the arched costa and greater breadth of their fore-wings, had a very different appearance from *purpurana*, which I used to find at Haslemere.

Euchromia ericetana, Westw.—Dr. Wocke sinks this name in favour of *trifoliana*, H.-S., the name by which it appears to be generally known in Germany, but this cannot stand, since Westwood's name is anterior, and is accompanied by a recognizable description. It cannot be admitted even on the ground that there is another *ericetana* in Wocke's genus *Steganoptycha*, since that also is a name of later date. *Ericetana*, Westw., must therefore be retained for this species.

Euchromia striana, Schiff.

Euchromia Branderiana, Linn.—M. Jourdheuille in his Calendar says that the larva feeds between leaves of aspen.

Orthotænia antiquana, Hübn.—Prof. Zeller says the larva feeds in the roots of *Stachys palustris*.

Sericoris conchana, Hübn.—Dr. Wocke alters this to *rivulana*, Scop., which is certainly a much earlier name.

Sericoris lacunana, Dup.—Of this species, beautiful varieties occur in the fens of Norfolk, and they are noticed by Wilkinson in a note at the end of the genus (p. 275), where he says that they are dark cinereous or smoky-black. This is correct of some specimens, but others are *coal*-black with the markings indicated by lustrous leaden lines. I have reared these dark varieties along with the typical form from screwed-up leaves of *Spiræa ulmaria*. They have been erroneously placed, as Wilkinson says, in some collections under the name of *herbana*.

Sericoris herbana, Gn.—Incidentally noticed by Wilkinson (p. 275), but not described. Introduced by Mr. Doubleday into his List from specimens named for him by M. Guenée. One of these specimens, by Mr. Doubleday's kindness, I have had an opportunity of examining, and am convinced that it is merely a variety of *lacunana*. Guenée says "It appears at first sight allied to, or simply a variety of, "*cespitana*; certainly more nearly allied to *lacunana*, and particularly "distinguished from it by the pale colour of the under-side of the "hinder part of the wings. The hinder wings are white beneath, "sprinkled with dark colour at the apex.

"Taken in grassy places on the coast of Brittany."

Now, this whitish colour of the under-side of the wings is utterly unreliable as a specific character, but is rather a peculiar form of variation in this genus, seeing that it occurs frequently in typical *lacunana*, as well as in *rivulana*, *urticana*, and *micana*.

It would be presumptuous to say, without further information, that M. Guenée has not discovered a species in France distinct from *lacunana*, to which he has given this name, but I do not think that we have it in this country.

Sericoris rupestrana, Dup.?—Recorded as British, but hardly described, in the Ent. Ann., 1866, p. 165. Said to be common on moors in the north of England. This species has, however, been introduced into our lists in error, and for this error, my friend Prof. Zeller seems to be primarily responsible, since he sent, some years ago, a specimen agreeing precisely with our insect, under that name. He has since, however, received the true *rupestrana* from Vienna, and has sent me a specimen. It is a very pretty species allied to *rivulana (conchana)*, but with narrower fore-wings and very neat markings. Its only known locality is Southern Germany.

I am decidedly of opinion that the insects which have been placed in our collections under this name are only dwarfed *lacunana*, but I give this opinion subject to correction, since Mr. Doubleday is not yet fully satisfied about either this species or *herbana*, and is inclined to think that even another species is separable from *lacunana* in this country. Further investigation is therefore desirable. At any rate, it is certain that so far from being constant, as Wilkinson says, *lacunana* is most variable in colour and in the distinctness of its markings.

Sericoris urticana, Hübn.

(*To be continued*).

ILLUSTRATIONS OF INSECT MONSTROSITIES. No. 1.—ON A MONSTROUS STAG BEETLE *(LUCANUS ELAPHUS)*.

BY PROF. J. O. WESTWOOD, M.A., F.L.S., &c.

In sending to the Entomologist's Monthly Magazine the first of a proposed series of notices of monstrous insects, it may, perhaps, be thought advisable that I should offer a few preliminary observations on this class of specimens, and upon the classifications that have been founded upon them. By those persons who, like myself, believe in the permanence of species, of course, every individual which differs in a more or less marked manner from the normal condition and appearance of the species to which it belongs must, strictly speaking, be considered as a monster; a term, however, which, in a scientific point of view, requires definition, since the amount of aberration from the specific type varies so greatly, that it has been proposed by some writers to restrict the term monster to those more important deviations by which the normal actions of the entire animal, or of some one or other of its organs, are materially affected.

Hence all those instances which readily occur to the mind of the student, and which are ordinarily termed varieties, resulting from difference of size, shape or colour of markings, and even the outline of the wings, or the alteration in position of the veins, the greater or less amount of punctures, or other variation of the sculpture, must be necessarily excluded from a memoir on monsters. The question as to the real position of certain varieties, which appear to assume a constant character, resulting either from variation in locality,[*] or times of appearance[†] has recently become one of much importance in reference to the possible formation of distinct local species.

We must, consequently, restrict our attention to those more decided cases of organic deviation from the structure of the tpye of a given species, which result in an incapacity for the due performance of the general or special functions of the individual, or of its special organs. It would be tedious to detail the systems of classification of monsters which have been, from time to time, proposed by Licetus, Huber, Malacarne, Buffon, Blumenbach, Bonnet, Meckel, Breschet, Illiger, Isidore Geoffroy Saint Hilaire (whose 'Histoire générale et particulière des Anomalies' is the great text work on the subject), or the more recent observations of Asmuss and Lacordaire (whose classification given in his 'Introduction à l'Entomologie,' vol. ii, pp. 414—452, is founded chiefly on that of Saint Hilaire).

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[*] *Polyommatus Artaxerxes*, *Salmacis*, and *Agestis*, may be cited as an instance; a still more remarkable instance is presented by the varied forms of the females of *Papilio Merope*, in Madagascar and Africa, as proved by Mr. J. P. M. Weale (Trans. Ent. Soc. Lond., 1874, p. 131).

[†] A remarkable instance of this "seasonal polymorphism" occurs in *Papilio Ajax*, which, according to Mr. Edwards, appears in early spring, under a form which has been termed *P. Walshii*; in the late spring, as *P. Telamonides*; and in summer and autumn, as *P. Marcellus* (Scudder, in American Naturalist for May, 1874).

Setting also aside those monstrous hybrid creatures, which have resulted from the pairing of animals of distinct species, we find :—

First, a series of monsters, in which the characters of the two ordinarily separate sexes are more or less distinctly to be traced. These are the gynandromorphous insects, which have the body most commonly divided into two distinctly sexual halves, one side being masculine, and the other femimine.[‡]

Secondly, we have a series of individuals with mis-shapen bodies or limbs, which have one or more of their organs of an unusual form or structure. These are the 'monstra per fabricam alienam' of the German authors, and form the section of 'Vices de conformation' of Lacordaire's system, and which are excluded by him from the real monsters.

Thirdly, the monsters which want one or more of the organs of the species, and which are the 'monstra per defectum' of the Germans or the 'monstres ectroméliens' of the French writers.

Fourthly, those individuals which have supplemental organs, or parts of organs, the 'monstra per excessum' of the Germans, and the 'monstres polyméliens' of the French.

Fifthly, those monsters which have two or more organs coalesced into one (monstres syméliens).

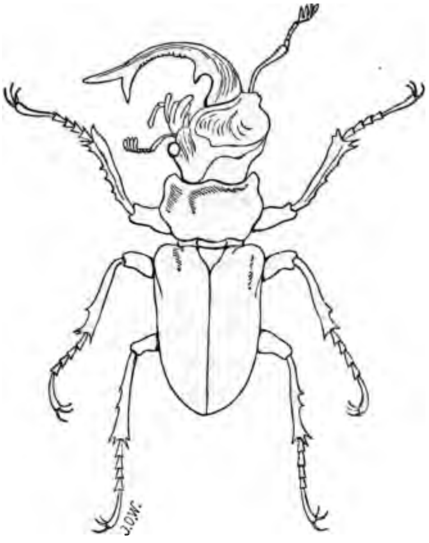
Sixthly, monsters which have the body open along a portion of its length (monstres par scission).

Seventhly, those insects which, in the imago, retain one or more of the organs of their preparatory states ('monstres par arrêt de développement'[*]).

The 'Anomaliæ magnitudinis' of Meckel, and the 'Monstra per colorem alienum' of Asmuss, appear to belong to some of the former groups—the gigantic or dwarfish condition of the animal being evidently a simple variation, the latter induced, in most cases, by insufficient food—whilst the different colouration of the opposite wings in *Lepidoptera* is often clearly the effect of gynandromorphism.

[‡] A curious series of specimens, in which the additional sexual character occurs in only a single organ, or portion of a single organ, is represented in one of the plates of my 'Thesaurus Entomologicus.'

[*] In addition to the various instances recorded, in which the head of the larva has been retained in the perfect state, a case has been recently recorded by Mr. Butler, at the Meeting of the Entomological Society of London, May 4th, 1874, in which the right wings of the peacock butterfly, *Vanessa Io*, were completely developed, whilst the left wings were undeveloped, the tail of the chrysalis having become detached during the process of emerging, and the butterfly not possessing the power to get rid of the left side of the pupa case. Another instance has also been recently recorded of a chrysalis of *Pontia rapæ* found with the head case covered with the head case of the larva (Poujade, in Bull. Soc. Ent. France [5], ii, p. lxxxiii).



The insect represented in the wood-cut is a stag beetle (*Lucanus Elaphus*, Fabr.), which was obtained by the late Mr. Raddon, with great numbers of other American insects, from skimmings of turpentine barrels, in London. It is a common North American species, and is clearly referable to the *Lucanus Elaphus* of Fabricius, being a specimen of the ordinary full size, and (except in respect of the head), must be considered as a male judging from the structure of the legs, both of the anterior tibiæ being long and narrow, and neither of them short and broad, as in the females of that species. There is some slight difference in the strength of the spines of the four posterior tibiæ, the hind ones being destitute of the middle spines. Hence might arise the question whether the diminished size of the left-hand half of the head might not be due to an arrest of development, or to the importation into the specimen of so much of the female organization; the extraordinary development of the right half of the head has necessitated a partial twisting of the neck, and the structure and punctuation of the left hand half of the head and left mandible is evidently that of the female, as well also as the shortened left antenna. A memoir by myself on this and some other gynandromorphous insects was read at the Meeting of the Entomological Society on the 6th June, 1836, but it has remained hitherto unpublished, together with the figures with which it was illustrated. I find from my notes that the wings were wanting in Mr. Raddon's specimen, thus indicating a certain deficiency of organization, and that, on examining the internal condition of the abdomen (so far as could be done in the dried condition of the specimen), no traces of the large male organ were to be found, a pair of terminal lobes, only such as are to be seen in a female stag beetle, being perceivable. Figures of the under-side of the head, and of the terminal segment of the abdomen, will be given in my next article. I regret not to be able to state what became of *the specimen* here figured at the sale of Mr. Raddon's collection.

A monstrous specimen of *Lucanus cervus*, in which the left-hand side of the head is furnished with a long, but contorted male mandible, whilst the right mandible is short and triangular, like that of the female, was figured by Dr. Klug (Verhandl. d. Naturf. Gesellsch. Berlin, 1829, pl. iv, f. 1; copied by myself in Loudon's Mag. Nat. Hist. iv, p. 435), and by Asmuss (Monstros. Coleopt., pl. x).

Oxford: *8th June*, 1874.

DESCRIPTION OF A NEW SPECIES OF *CETONIADÆ*.

BY D. SHARP, M.B.

Agestrata Samson, *n. sp.*

Suprà viridi-ænea, sat micans; subtus ænea, lateribus fulvo-maculatis; prothorace lateribus antice omnino immarginatis.

♂ *Long. corp.* 50 *mm.*
Lat. „ 23 *mm.*
Long. antennarum flabelli 6 *mm.* (*vix*).

♀ *Long. corp.* 54 *mm.*
Lat. „ 24 *mm.*
Long. ant. flab. 5 *mm.*

Clypeus in front strongly punctured, its lateral margins but little raised, the teeth formed by these moderately long and rather stout. Thorax not so long as broad (its length along the middle 16 mm., its greatest breadth 19 mm.), its sculpture very fine; it has a fulvous spot at the exterior margin on each side, and the raised lateral margins are entirely wanting on its anterior half. The exposed portion of the scutellum is elongate and narrow. Shoulders fulvous. Elytra distinctly sinuate at the extremity, the sutural line dehiscent towards the apex, the apical teeth rather stout. Under-surface metallic, the sides of the breast and abdomen with fulvous marks; sides of the abdomen slightly punctured, but without any rugosities. Angle of the hind coxæ produced into an acute spine. Mesosternal process rather long and narrow, not dilated at the extremity.

Habitat, Silhet.

This fine insect is remarkable amongst its allies from its large size and broad form, and may be distinguished from the hitherto described species of *Agestrata* by the fact that the side margins of the thorax are quite wanting in the front part. The two specimens before me (♂ & ♀) differ in the colour of their legs; in the male individual, the femora are reddish, with a brassy streak along the middle, while in the female the hind femora are entirely metallic, and the red marks on the other femora are much reduced in size. The tibiæ and tarsi are not in the least metallic, but are of a pitchy-red colour in the male, and nearly black in the female.

Besides the two specimens in my collection, I have seen three others placed as an undescribed species in the collection of Count Mniszech, from the same locality. Though I have not examined these specimens critically, I have little doubt they belong to the species here described.

Thornhill, Dumfries:
8th June, 1874.

DESCRIPTIONS OF NEW *LYCÆNIDÆ* FROM WEST AFRICA.

BY W. C. HEWITSON, F.L.S.

LIPTENA ADELGITHA.

Upper-side: ♂, dark brown, the fringe spotted with white. Anterior wing with a minute white spot near the middle of the costal margin.

Under-side: dark brown. Both wings with numerous spots of white: both with a sub-marginal series of white spots.

Exp., $\frac{9}{10}$ inch. Hab., Gaboon (Rogers).

LYCÆNESTHES LYZANIUS.

Upper-side: ♀, dark brown, with several black spots and some indistinct white spots.

Under-side: white. Both wings crossed by several brown bands: both with two sub-marginal bands of brown, the band nearest the margin narrow and indistinct. Posterior wing with two black spots, bordered above with orange near the anal angle.

Exp., $\frac{17}{20}$ inch. Hab., Old Calabar.

Oatlands, Weybridge:
June, 1874.

DESCRIPTIONS OF THREE NEW BUTTERFLIES FROM COSTA RICA.

BY HERBERT DRUCE, F.L.S., F.Z.S.

PAPILIO SADYATTES, *n. sp.*

Upper-side, ♂, deep black. Anterior wing with a minute white spot below the first median nervule close to the cell. Posterior wing with three unequal, sub-ovate, scarlet, opalescent spots, placed in the middle of the space between the discoidal and the first, second, and third median nervules.

Under-side brownish-black. Anterior wing with the white spot as above. Posterior wing with five pinkish-white spots between the nervules, the first two small, the fringe of both wings alternately white and black.

Exp. 3 inch. Hab. Costa Rica.
In coll. H. Druce.

ERESIA COELA, *n. sp.*

Upper-side, ♂. Anterior wing black, a triangular white spot divided into four by the nervures beyond the middle of the costal margin, a small spot between this and the apex, and a sub-marginal band of six white spots, the third minute; a large round white spot close to the anal angle. Posterior wing rufous-orange, with the base and outer margin black, a sub-apical white spot, and a sub-marginal band of linear yellowish spots.

Under-side, the same as above, except that all the white marks are larger, and a yellow streak at the base of both wings, also a yellowish spot partly in the cell of the anterior wing.

Exp. 2 inch. Hab. Costa Rica.
In coll. H. Druce.

MESOSEMIA CEROPIA, *n. sp.*

Upper-side, ♂, deep bluish-black, with the base of both wings blue. Anterior wing crossed beyond the middle by a band of blue, broadest near the costal margin; a narrow blue band close to the outer margin, broadest at the anal angle. The discal spot scarcely visible, with three minute white spots. Posterior wing with the outer margin broadly blue.

Under-side brown. Both wings with a discal spot (with three minute white spots in the anterior, and two in the posterior wing), bordered with orange, and crossed on both sides by two broken dark brown lines. A dark brown line crossing both wings near the outer margin.

Exp. 1¼ inch. Hab. Costa Rica.
In coll. H. Druce.

On the under-side this species resembles *M. Mycene*, Hew.

1, Circus Road, N.W.: *May*, 1874.

Notes on rare Kentish Coleoptera.—My entomological doings, as far as Britain is concerned, being probably at an end for several years (as I leave England in a few days for the Mediterranean Station), I am induced somewhat prematurely to send a few notes on the more important species of *Coleoptera* I have met with since March last.

From the Isle of Sheppy, I have great pleasure in recording *Agriotes sordidus*, Ill., of which I found a single ♂ example in flood-refuse, in April. In May, I obtained a clue to its habits; and, by dint of much labour, was so fortunate as to secure a considerable number, from under large loose stones on the shore, just above high-tide mark. With them were a few "wire worms," evidently the larvæ of this species, and (rarely) a reddish (but quite mature) variety. I am sorry to say that some of the specimens were abraded, the pubescence, so characteristic of the species when fresh, being exceedingly delicate and fugitive.

Among other species from the same locality, I may mention *Dromius vectensis*, Rye, in flood-refuse; *Harpalus rupicola*, under stones; *Stenolophus elegans*, a fine series in flood-refuse, in April; *Achenium humile*, not rare in flood-refuse and under stones; *Compsochilus palpalis*, Er., a single example, by promiscuous sweeping, at the end of May; *Nitidula rufipes*, a few in a dead bird; *Hister neglectus* and *bissexstriatus*, *Syncalypta hirsuta* (all these three in great profusion), and *Sarrotrium clavicorne*, in flood-refuse; *Telmatophilus brevicollis* and *Limnichus pygmæus*, by casual sweeping; typical *Aphodius plagiatus*, in flood-refuse; *Cœliodes exiguus*, common on *Geranium dissectum; Ceuthorhynchus tarsalis*, on *Sisymbrium; Phlœophagus spadix*, one or two specimens picked up casually in different places; *Apion Schœnherri* and *Hylesinus oleiperda*, by sweeping; *Hyperaspis reppensis* and *Scymnus Mulsanti*, basking in the sunshine on stones, &c.

The Chatham district has also yielded its fair share of good species, the following (of which several have likewise been taken by Mr. Champion, in my company) being the most noteworthy:—*Harpalus azureus*, running about in the sunshine; *Stenolophus flavicollis* and *dorsalis*, in moss, &c., in a wet place; *Ilyobates forticornis*, in flood-refuse; *Callicerus rigidicornis* and *Calodera umbrosa*, occasionally by sweeping under fir trees, also in a sand-pit; *Homalota scapularis*, a few by evening sweeping; *Tachyporus formosus*, Matt., several specimens in moss, and one by sweeping (hitherto only recorded, I believe, by the Rev. A. Matthews from a Midland locality,—I fancy Sherwood Forest); *Pæderus riparius* and *fuscipes*, in flood-refuse, and by sweeping, "grubbing," and cutting tufts in a marshy place, the latter species occurring in profusion; *Stenus major*, in flood-refuse (also not rarely at Faversham, in April, by cutting tufts of *Carex* in a wet place); *Bledius atricapillus*, in enormous numbers in a sand-pit, in April, the perpendicular sides of the pit being riddled with its burrows for yards together; *Oxytelus piceus* (♂), in flood-refuse; *Agathidium rotundatum*, in fungus; *Meligethes symphyti*, in flowers of *Agraphis; Cicones variegatus*, in a nest of *Formica rufa; Lathridius testaceus*, in some numbers in a very small quantity of brown powdery fungus (not unlike snuff) on rotten beech bark; *Aphanisticus pusillus*, by sweeping; *Mordellistena abdominalis* (♂), on umbelliferous flowers; *M. brevicauda*, common in buttercups, &c., on the chalk-hills; *Plinthus caliginosus*, not uncommon in moss; *Mecinus circulatus* and *Gymnetron rostellum* (several), by general sweeping; *Ceuthorhynchus suturellus*, rarely, on *Cardamine pratensis; C. alliariæ*, not rare on *Erysimum alliaria; Ceuthorhynchideus hepaticus*, *nigrinus* (in profusion), *terminatus*, *Chevrolati*, and *versicolor* (not rare), by sweeping under fir-trees, &c.; *Apion filirostre*, *Cissophagus hederæ*, and *Cryptocephalus lineola*, by general sweeping; *Chrysomela gœttingensis*, in a sand-pit; *Phyllotreta sinuata* (♂) and *Thyamis distinguenda*, Rye, by sweeping; *T. agilis*, Rye, variety with dark suture, on *Scrophularia aquatica* growing in a wet place (unfortunately, this insect only too well merited its specific name, as of several specimens netted by Mr. Champion and myself, all but one effected their escape); *Cassida vittata*, two or three in moss; *C. sanguinolenta*, by sweeping.

Near Faversham, on May 30th, I fell in with *Rhinocyllus latirostris*, in profusion on the heads of a few thistles growing in a wood, on dry chalky soil, and miles away from the coast, to which I had imagined that this fine weevil was confined. On the same day I took *Aspidophorus orbiculatus* (not rare), *Liosomus oblongulus* (♂), *Gymnetron rostellum*, &c., by sweeping.—James J. Walker, R.N., 7, West Street, Blue Town, Sheerness: *June 8th*, 1874.

Capture of Aphodius villosus.—I have had the good fortune to meet with a considerable number of this insect, in a chalk cutting at Freshwater, Isle of Wight. They were chiefly crawling over the clean chalk, and I could discover no clue to their proper habitat. It is evidently a June species, as I have just noticed that Mr. Sidebotham's record in this Magazine, for 1868, of the capture of this insect in Wales, bears the same date as my own.—Chas. O. Waterhouse, British Museum: *June 16th*, 1874.

Notes on Oxyura and other Hymenoptera.—Although I only commenced the study of *Hymenoptera* in March last, I am induced to offer a few observations from seeing what a wide field of research is open for any one who will engage in this branch of entomology. Up to this date, I have had only about twelve hours of actual field work; yet of seventeen species sent by me to the Rev. T. A. Marshall for inspection, seven are certainly rare, and some new to England, if not to science.

The following names of some of my captures, given by Mr. Marshall (for whose ready and patient assistance in the minutest details of all my requirements my best thanks are due), will at once show how much may be done by quite a tyro:—*Ceraphron palli(di)pes*, new for England; *Hyperbæus seminulum*; *Thoron metallicus*; *Cosmocoma fuscipes*; *Prosacantha brachyptera* (or *rufipes*), *pedestris*, and two doubtful species; *Aclista sp.?* It should be borne in mind that these were all taken in three expeditions before the middle of April. Since then, I have been taking dozens, which still remain unnamed, owing to my want of knowledge. In fact I take enough in two hours to occupy my evenings for a week in setting them, and it seems a great pity that there should be so few workers in this branch of entomology.

On the *Cynipidæ*, these few notes may be of interest. By far the majority of galls of *C. lignicola* on the oak scrubs in the ravines on Wimbledon Common appear to contain inquilines. I gathered forty galls, choosing several small ones, and having thirty-one still entire. Out of the other nine, I have obtained the following:—of a species of *Callimome*, seven; of another, *Chalcis*, three; of a third, two; of *Decatomus biguttatus*, two; of a *Synergus* (two species), over twenty-four, of which sixteen came from one gall of the smallest size; and another *Synergus* which looks like a new species. Of the two first mentioned *Synergi*, Mr. Marshall writes that they are either new or cannot be identified. I opened the small gall which contained the sixteen *Synergi* after twelve had come out, and found the other four each wrapped in a thin silken film; on opening this, I found them quite dry within. They could fly almost at once. I also detected a *Callimome*, ♂, in the act of escaping from a gall. The hole was not quite completed at the orifice; there was a cold wind, which suggested that the insect was waiting for sunshine; but within, the insect was dry, and had its wings fully expanded.—A. O. Ward, 10, Stratford Grove, Putney, S.W.: *15th May*, 1874.

Description of the larva, &c., of Boarmia roboraria.—I am indebted to Mr. W. H. Harwood for repeated help in rearing this species, enabling me at length to offer an account of all its stages. With larvæ sent in 1868, I failed entirely, but succeeded much better with eggs in 1871; and this past spring, I have again been furnished with a larva after hibernation, in order to make sure of one or two points.

The eggs reached me on July 5th; the larvæ were hatched on 15th, and I soon put them outdoors on a young oak; when about three-quarters of an inch in length they hibernate, taking up a position on a twig, and remaining motionless as if growing from it; about the end of January, 1872, I found them gnawing the bark of the twigs, and this they did at intervals till they had barked all the twigs of their oak-plant, and checked the development of the buds; so that on looking at them about the end of March, I found some dead from starvation, and the survivors looking shrunken: I now put them on a fresh plant, the leaves of which had been forced, and on these, as well as on the tender green stems of the new shoots, they fed well, becoming full-grown towards the end of April or beginning of May; the moths appeared between June 5th and 12th.

The egg, as is the case in this genus, is small in proportion to the moth, of flattened oblong figure, one end blunter than the other; the shell down the sides reticulated in regular rows of four-sided meshes, with knots or little knobs at the angles, and generally one or two extra on one of the four sides, as though the shape were meant to be a pentagon or hexagon; at the ends the meshes are pentagonal or hexagonal, with the knots in their proper places; the colour of the eggs when received was dull greenish, one end becoming deep pink, the little knobs being white; at last, the whole egg became dark brownish. The newly-hatched larva is without humps, in colour pale green, broad dark brown lateral stripe, head pale reddish-brown. The first moult takes place in about a week, and the young larva comes out with indications of a hump on sixth segment; the colour pale ochreous on back, lateral stripe pale brown, spiracular stripe pale ochreous, belly darker.

After this, the larva gets darker in colour, and attains a length of about three-quarters of an inch before hibernation; the head is now notched, and large for the size of the body, the ventral and anal pairs of legs are also large; the sixth segment puffed, and bearing two transverse humps on the back; the seventh with a pair of ventral warts; the twelfth with a transverse dorsal ridge bearing a pair of warts. The colour a dull purplish on the back, the belly paler and more brownish, the folds, humps, and ventral and anal legs all dusky grey; the head ochreous, freckled with brownish; at the folds, a slight dorsal pattern, viz., a blackish spot with an ochreous spot on either side.

After hibernation it moults once, and then feeds up. The full-grown larva is about one and three-quarters of an inch in length; from above it appears of about uniform bulk throughout, except at the sixth segment; but sideways it appears stoutest at the ninth and tenth segments; the head is narrower than the second segment, flattened in front, notched on the crown, the lobes rising in conical prominences; the sixth segment very much swollen on the back and sides, and bearing a pair of puckered sub-dorsal humps; the swelling begins just below the spiracle, which is thus lifted considerably above the level of the spiracles of the other segments; the seventh bears on its belly a pair of transverse puckered humps, in some specimens looking more like two sets of warts—three in each; the twelfth has a slight transverse dorsal ridge bearing a pair of warts: in some specimens, also the fourth bears a pair of three-lobed, transverse, sub-dorsal humps; the front pairs of legs on segments three and four are well developed, as well as the ventral and anal pairs; the anal flap triangular, somewhat rounded at the tip, the 13th (under the flap) ending in two bluntish points, with a shorter, sharper one between them; the skin glossy, but wrinkled on the hinder part of each segment.

The ground colour is generally purplish-brown, sometimes more cinnamon-brown, the folds and humps dark brownish-grey; there is not much pattern, and different individuals vary in the amount of patches of paler colouring, some having broad patches of cream colour in the spiracular region of the fifth and tenth segments; the sixth sometimes tinged with rust colour; the dorsal line appears as a palish dash on the front of each segment, and a spot just at the end; similar pale spots are sometimes seen where the sub-dorsal line should be on the sixth and ninth segments; the head brownish; the spiracles dirty-white, outlined with black. The whole appearance of the larva, both in outline and colour, is extremely suggestive of an oak twig, and it preserves the resemblance under one or two changes of attitude; sometimes standing stiffly out, with the body in a straight line up to the eighth segment, then the seventh bent slightly upwards from this, and then from the sixth to the head again in one line; the head and thoracic segments and legs more or less "bunched" together; sometimes standing off at a wider angle from a twig, and then with the whole front of the body from the sixth to the head inclined—in a stiff line—towards the twig again; in this position, it looks like what had been a forked twig, with one of the forks broken off: in walking, its humps lose much of their prominence, and then it looks much like other stout Geometers.

The pupa is enclosed in a slight cocoon, placed just on the surface of the soil, and formed by drawing together moss, &c.; it is about three-quarters of an inch long, cylindrical, the thorax and upper part of abdomen stoutish, the lower part tapering off rapidly; the wing cases granulated and dull, the abdomen glossy; the whole pupa skin sparsely set with fine bristles; the anal spike triangular, flattened, and ending in a long fine spine, barely bifurcated at the tip; colour a very dark brown, with the abdominal rings reddish.—JOHN HELLINS, Exeter: *30th May*, 1874.

British Hemiptera: memoranda for residents and tourists.—

Calyptonotus quadratus, a terrestrial species.

Lygæosoma punctatoguttata, gregarious at the roots of the foxglove. *L. reticulata*, also gregarious about several low plants.

These are all common in the Channel Islands. The first is very rare in England, the other two not hitherto found in Britain, but all may reasonably be expected to occur in the Southern Counties.

Nysius jacobeæ, Schill. (*fragariæ*, Boh.), which is found throughout Europe, and frequents the wild strawberry; should surely be found in Britain. It usually occurs in the brachypterous form, and in this state was once found numerous in Switzerland by Meyer-Dür, who, at the time, thinking the examples were only undeveloped *N. thymi*, took only a few, and did not find out his mistake until it was too late to get more.

Eremocoris plebeius is only known as British by a solitary example from Scotland. It is found in Germany and the North of Europe among the roots of heather (*Calluna vulgaris*).

Of the genus *Ophthalmicus* three species are noted by Dr. J. Sahlberg as having been taken by him as far north as Karelia; one of them (*O. pygmæus*, F. Sahlb.) plentiful among heather in August. The genus is hitherto unrepresented in Britain, although many species inhabit the Continent, and some *must* be here.

Tingis pyri lives on the leaves of pear trees throughout Europe, often in such numbers as to occasion detriment to the trees, and hence known to French horticulturists by the name of "le tigre." It is reputed to have been found in Britain, but I have never seen a native example.

Monanthia (Platychila) pilosa, Fieb., is recorded as having been found in France on the white horehound (*Marrubium vulgare*) in July (E. Perris, Ann. Soc. Ent. France, iii, 76, 1873), and probably only wants to be looked for here in order to be added to the British list.

The above are a few of many species of *Hemiptera* that may reasonably be expected to occur in Britain; the casual captures by the collectors of other orders in fresh or out-of-the-way localities may soon, I hope, include at least some of them, or perhaps others of the numerous species that inhabit the Continent, and are not debarred by any known cause from being resident here, but have not hitherto been claimed as Britons.—J. W. Douglas, Lee: *June*, 1874.

Additional notes on the egg-laying, &c., of Acanthosoma griseum.—I have been hoping for some time that I should see some notice of this species from the pen of some one who had studied the *Hemiptera*, but failing this, I thought I would copy out at full my notes made in 1871, of which I gave a very short abstract at page 13 of Vol. ix of this Magazine.

On June 4th, 1871, I noticed an *Acanthosoma griseum* on one of the lower branches of my birch-tree, apparently engaged in extracting some nourishment from the catkins; she seemed quiet, and the under-side of her abdomen, near the tip, had a greenish tint, suggestive of a batch of eggs soon to be laid; I saw her again on the 5th, a little way off from her previous position, and again I found her on the 6th very near the same spot; at 3 p.m. on that day I looked again, and found her close to where she was on the 4th, and now engaged in laying eggs on the under-side of a leaf. I did not see an egg actually extruded, but I saw the whole batch gradually placed in order.

She began by depositing one egg, then a row of two or three, then about five, till, at the widest row, there must have been seven or eight; then she diminished the rows again till she came to a point, the whole mass, in number between thirty and forty, forming a rough diamond figure just about the size of her own body. The outer eggs were laid on their sides, the inner ones stood up on end. I detached one and examined it with the microscope, and found it long in shape, twice as long as wide, plump, a little depressed on the sides, recticulated all over very faintly, somewhat glossy, and in colour pale whitish-green. The mother now took her stand over these eggs, but I do not think her body touched them; towards the end of June I noticed that the side of the eggs nearest the sun had become yellowish, and, on the 29th, I found the young bugs all hatched, and clustered under their mother amongst the empty egg-shells; they were yellowish-green in colour, their thoraces *becoming darker than the* abdomens, and I saw them moving their antennæ.

On July 3rd I found them showing a red streak down the middle of the abdomen, and, on the 6th, they had moved from among the egg-shells, and were got together by themselves. About this time the wind was occasionally rough, and I think was the cause of some of them disappearing, for I could not find that they moved away of themselves, and so concluded that they had been blown or shaken off their leaf. On the 9th I found them moulting, and saw some of them kicking away their cast skins behind them; their colours were bright at first, yellow with vermilion stripe, and they soon began to move about more freely, and on the 13th migrated—now with sadly diminished numbers—to a neighbouring catkin. I now packed up the mother with eight young ones, and despatched them to Mr. Douglas; but, unfortunately, he was from home, and returned only to find their dead and dried bodies.

I fancy it might be a good plan to beat birch-trees for the impregnated females towards the end of May, and if any were taken, they might possibly be induced to lay in confinement, by furnishing them with fresh birch twigs in a bottle of water, enclosed in a glass cylinder.

I do not think the female feeds whilst brooding over her eggs or young, so that she need not be disturbed till the latter have been hatched for a day or two, when perhaps a fresh twig might be placed close at hand for her to move to if so inclined.—JOHN HELLINS, Exeter: *June 2nd*, 1874.

Reviews.

FAUNA AND FLORA OF NORFOLK: Part v, LEPIDOPTERA, by CHARLES G. BARRETT (Transactions of the Norfolk and Norwich Naturalists' Society, 1873-4, Supplement); pp. 1—80. Fletcher & Son, Norwich, 1874.

It is not often that we have had the pleasure of analysing so complete and valuable a local list as this. Too frequently such lists consist of mere catalogues of names, and bear internal evidence of untrustworthiness; or, if tolerably complete in the *Macro-Lepidoptera*, the "Micros" are usually conspicuous by their absence. All who know Mr. Barrett will bear willing testimony to his indefatigable industry and powers of discrimination and observation; and English entomologists in general (and those of Norfolk in particular) will remember with satisfaction the fortunate chance that caused him to be located in the city of our eastern counties for several years. This is *not* a mere list of names; the localities are copious, and no opportunity is lost of giving lengthened notes on the habits of the species, with indications of extensive literary research into all that has been written concerning the *Lepidoptera* of the county. 1240 species are enumerated, a very large number, considering that for the Micros the compiler had to rely almost entirely on the results of his own observations. We heartily commend this work to the notice of British Lepidopterists.

The "Transactions" of the Society (of which Mr. Barrett's list forms a separate supplement) for 1873-4, contain some useful hints on breeding *Lepidoptera*, by Mr. Wheeler (but we are sorry to see that the writer dispenses with generic names), and notes on the nidification of *Prosopis*, by Mr. Bridgman.

NOMENCLATOR ZOOLOGICUS, continens nomina systematica generum animalium tam viventium quam fossilium, secundum ordinem alphabeticum disposita: sub auspiciis et sumptibus C. R. Societatis zoologico-botanicæ conscriptus a COMITE AUGUSTO DE MARSCHALL; Vindobonæ, 1873, pp. 482.

In 1848 was published the well-known "Nomenclator" by the late Professor Agassiz, enumerating the names in use from the commencement of the system up to 1846, amounting to about 31,000; but for some years it has been practically impossible for a zoologist labouring under the necessity of coining a new generic term, to be certain that his proposed name was not already in use. It was, then, with great satisfaction that zoologists, heard, a few years since, that a continuation of this work up to the year 1868 was in preparation by Graf Von Marschall in Vienna. This has at length appeared, and contains, at a rough estimate, about 23,000 additional names, bringing the total to the alarming number of 54,000. This continuation is a great boon, and, even if there be errors of omission (things nearly impossible to avoid in a work of this nature) the compiler deserves, and will doubtless receive, the thanks of all working zoologists. Since the year 1870, an index of new generic names has been added to the vols. of the "Zoological Record," so that now there remains only 1869 absolutely unaccounted for (and a list of the new genera for that year will, we believe, be added to the next volume of the Zool. Record). As a reference for generic *names* only, it would, perhaps, have been better if the work had taken the form of Agassiz's "Index Universalis," *i. e.*, an alphabetical list from beginning to end, but the compiler (who gives a publication reference and date in each instance) has adopted the classified plan; there are thus 22 separate alphabetical lists to wade through instead of one only, and as all names are inserted precisely as published, without any grammatical or orthographical emendations, a zoologist who respects the letter H must also search through the vowel initials of the 22 sections before he can always be sure that his proposed term will run the gauntlet of criticism. The number of absolutely "nonsense-names," evidently formed without the slightest attempt at meaning, is enormous, and the greater part of these are found among the various orders of *Insecta*, the chief coiner of them being a well-known English writer. A glance shows, also, that, for want of a guide such as this, the number of instances in which the same name has been used two or more times, even in the same order, is very large. With neither time nor space for an extended analysis, we conclude by recommending the book as a monument of laborious research of a nature that few could be found to willingly undertake.

PSYCHE; organ of the Cambridge (Mass.) Entomological Club. Edited by B. PICKMAN MANN. No. 1; May, 1874.

The 'Club' under whose auspices this quarter-sheet is issued, appears to number about twenty-five members among which are several names well known and honoured in entomological science. A first number of any periodical of this nature is scarcely a fair subject for criticism; but on a future occasion we hope to feel called upon to give a more extended notice. Our present notice shall be limited to praising the proposed plan of giving monthly notes on the bibliography of all that concerns American Entomology, and to discouraging the attempt initiated to apply '*English*' (or 'common') names to North American butterflies. Our American cousins will do well if they avoid the vices of their ancestors in the old country; and they may receive our assurance that the proposed practice, instead of advancing entomological science, will, in the long run, have the opposite effect.

ENTOMOLOGICAL SOCIETY OF LONDON: *May 4th*, 1874.—Sir S. S. SAUNDERS, President, in the Chair.

The Entomological Society of the Netherlands presented a finely executed medal struck in honour of Dr. Snellen von Vollenhoven on his retirement from the office of President, which he had held for twenty years.

G. T. Porritt, Esq., of Huddersfield (already a Subscriber), and Herbert Goss, Esq., of Brighton, were elected Members.

Mr. Butler exhibited an example of *Vanessa Io* bred from the chrysalis, shewing an arrest of development, the wings, &c., on one side being perfect, whereas, on the other side, they were aborted and shrivelled, with the pupa-case still attached. He considered this due to the fact of the pupa having become detached during the metamorphosis.

Mr. W. C. Boyd exhibited a specimen of a *Solenobia* from St. Leonard's Forest, which was taken with ordinary *S. inconspicuella*, and might be an albino variety thereof, but of very different appearance from the ordinary form. He also exhibited several leaves of *Symphytum officinale* recently gathered, on the under-side of which was a dense mass of dead or moribund examples of *Brachycentrus subnubilus* nearly covering the surface. All the insects (with perhaps a single exception) were males. Upon these leaves there were probably several hundred examples. No obvious reason could be suggested for this assemblage.

Mr. Stainton remarked that there were many such unaccountable instances of a habit of congregating in insects, and reminded the meeting of a fact known to all breeders of *Micro-Lepidoptera*, concerning the pupation of most species of the genus *Nepticula*, the larva of which were comparatively solitary, mining in leaves; but if a number of mined leaves, containing larvæ, be collected and placed in a box, it is found that the cocoons are constructed gregariously between certain of the leaves, with no apparent reason for the preference. He illustrated the habit by comparing the mass of mined leaves in a breeding box to those of a book, between only a few of which the accumulated pupæ would be found.

Mr. C. O. Waterhouse exhibited a beetle of the genus *Sinoxylon (Bostrychidæ)* sent from British Burmah by Dr. Lamprey of the 67th Regiment, which, according to him, had the habit of boring into small stems, and then eating the wood completely round within the bark, so that it became entirely detached by the first gust of wind; portions of small stems thus severed by the beetle accompanied the exhibition.

Mr. McLachlan said he had to correct an error into which he had fallen when exhibiting at the meeting on the 7th July, 1873 (*cf.* Ent. Mo. Mag. x. p. 72; Proc. Ent. Soc. 1873, p. xxiv.) an insect of the family *Syrphidæ* as gynandromorphous. Mr. Verrall, who had examined it, said it was a male of *Chrysotoxum festivum*, and that the apparent asymmetry of the genital apparatus was usual in that species, as also in other *Syrphidæ*.

Part ii. of the Transactions for 1874 was on the table.

LIFE HISTORY OF *MELIGETHES*.[*]

BY ELEANOR A. ORMEROD.

In the spring of 1872, I was requested by my friend Mr. Andrew Murray to make some observations on the development of the genus *Meligethes*, for which my residence in the country and sufficient leisure seemed to give me some advantages.

Mr. Murray had already (Trans. Linn. Soc.) monographed a portion of the family of *Nitidulidæ* to which *Meligethes* belongs, and had devoted considerable study to that genus itself, with a view to the continuance of his monograph. In the meantime, Herr Edmund Reitter of Paskau had, for the first time, published (Brunn: 1871) a monograph of the European species of the genus, describing as many as 99 (of which 76 had been recognised by various previous authors), and to which nearly a score more have been added subsequently by Herr Reitter and M. Ch. Brisout. As the characters of such a large number of species in a genus of singularly uniform aspect are necessarily very minute, Mr. Murray was anxious to find what amount of individual variation (if any) took place in the broods of any one of them, and so asked me to assist him in ascertaining this point.

In this respect, however, my observations were not productive of any result, but, in another point of view, they may perhaps be of interest to entomologists; for it is unnecessary to say that I could not make the researches required of me without rearing and breeding the insects, and, consequently, I was compelled to study their whole life history from the egg to their perfect development. So far as I know, their early history has never previously been described in this country; the larva and pupa are known, but beyond that I believe their life history is a blank, which I shall endeavour to supply by the following notes.[†]

The species which I studied were the large *M. rufipes* and the common green *M. æneus* and *viridescens;* but, as the two latter of these vary considerably in colour, and hundreds of them passed under review, it was impossible to ascertain (whilst watching their habits in a state of liberty) whether some specimens of the *viridescens* were not mixed with the *æneus*, and I have therefore simply designated both throughout as "the green *Meligethes*," though, as far as careful observation went, they were entirely *æneus*.

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[*] Read by Andrew Murray, Esq., F.L.S., at the Meeting of the Kensington Entomological Society in May, 1874.

[†] Since the above was in type, I am indebted to Mr. Rye for drawing my attention to the publications of Ernst Heeger (Sitzungsber. Akad. Wissensch. Wien, xiv, Heft 2, 1854, pp. 278–281, pl. iii, figs. 1-10), G. Künstler (Die unseren Kulturpflanzen schädlichen Insecten, &c., 1871, pp. 46 and 47), and J. H. Kaltenbach (Die Planzenfeinde, &c., 1872), as recent continental writers on the life-history of *Meligethes æneus*.—E. A. O.

My observations were made at Sedbury Park, in the west of Gloucestershire, and began about the 22nd of May; but the season was backward both as regards plant and insect life, so that the date in ordinary seasons would probably range rather earlier.

The first species that I noticed was *M. rufipes*, abounding then on the hawthorn blossoms, but of the individuals of this I only noticed especially the dexterity with which they buried themselves when in confinement, and that none of the specimens which I then opened showed the presence of eggs.

About June 6th, the brassy-green *Meligethes* were to be found in considerable numbers on the inflorescence of cultivated *Cruciferæ*, apparently feeding entirely on the pollen, and indifferent whether they gnawed it direct from the anther, or swept it with their jaws from where it chanced to have fallen on the surface of the leaves, or each other's backs, and also collecting it in masses on the frontal portions of the head, by drawing the tibiæ laden with pollen (which seem as if purposely formed for collecting it) through the mouth appendages. On opening the abdomen of some of the *Meligethes* infesting the turnip plants, I found that eggs were formed, usually only two in number, but occasionally four.

On the 14th of June, examining some turnip stalks in flower, I noticed a considerable number of larvæ amongst the filaments and apparently injured buds, and sometimes as many as five of these larvæ in one flower. They were very active, and their method of progression, with the assistance of the caudal proleg, vigorous, and characteristic, by taking a few steps in the ordinary way, then giving a sudden and most energetic twist of the tail forward with a sweep to one side, and, after securely fixing the caudal foot, proceeding as before.

On the 15th to the 17th of June, similar larvæ were to be found in profusion on turnip and cabbage blossom haunted by the green *Meligethes*, the larvæ usually spotted, and so transparent that the contained matter might be seen moving about internally in globules.

The larvæ were usually to be found in the buds and partially opened flowers, distinguished by a shrivelled and stunted appearance; in the stamens and petals the distortion of the flower being, in all probability, owing to the partiality of the larvæ for gnawing at the base of the blossom.

In one case, I watched a larva with its jaws applied to the same spot for upwards of two minutes, and working with such energy that the jerk with which it pulled from time to time was distinctly visible, but I was never able to detect that solid matter was removed.

Up to this time I was unable to find an egg on the flowers or stamens, but the frequently diseased state of the anthers, added to the fact of my once finding half an anther completely occupied by one of the larvæ, suggested the possible locality, more especially as the anther was occasionally swollen in one place, so as to have a completely gall-like appearance.

On the 17th of June, I found, on growing rape plants, great quantities of these larvæ, now more opaque, with (in some cases) a brown appearance along the back and the spots no longer visible, collected together in parties of as many as one to two dozen at the base of the pedicels of the topmost flowers, on the sprays of which the blossoms were now withered; others of the larvæ were distributed variously, but chiefly on the seed-pods, where the gnawing motion of the brown jaws might be clearly distinguished against the light colour of the vegetation; these larvæ appearing to absorb the plant juices with their mouths rather than to eat the solid substances.

Some of these rape sprays I planted in earth in a flower-pot with their adhering larvæ, as also some sprays of withered turnip blossom, on which similar parties of four to seven larvæ were collected at the base of the pedicels of the topmost flowers, putting the rape and turnip sprays in separate pots, each pot in a bowl of water to secure dampness.

At about a quarter to nine on the evening of the 17th of June I found the larvæ on the rape stems burying themselves as fast as possible in the earth. They appeared to drop, not to crawl down the stem, and then rapidly crawling over the surface of the earth, buried themselves head foremost as fast as they could. Of about forty or more larvæ which were on the shoots in the evening, I did not see one on the following morning, and the turnip larvæ disappeared at the same time.

The dropping of the larvæ from the spray appeared to me to be caused by an alteration in the shape of the caudal proleg, which, ceasing to be serviceable to its proprietor, obliged the larva, whether so inclined or not, to fall from the position no longer suitable to it into the locality requisite for its further existence.

On the 7th of July, noticing that the very heavy rains had washed a number of the larvæ from the flower-pot in which the turnip grubs were confined, I turned the ball of earth out on my hand, and found, near the bottom of the pot, a small beetle-pupa of a white colour with reddish-brown eyes, and of obtuse oval shape (undoubtedly a *Meligethes*), the creature apparently in vigorous health. It lay in a little earthern cell, just like those of *Balaninus glandium*, only on a smaller scale, with a few other similar pupæ in the flower-pot, about three and a half or four inches below the surface of the ground. The outside time occupied in the pupal change was approximately three weeks; but it was impossible to tell the time that had been required with accurate precision, as the larvæ did not bury themselves quite at one time, and the pupæ were fully formed when noticed on the 7th July.

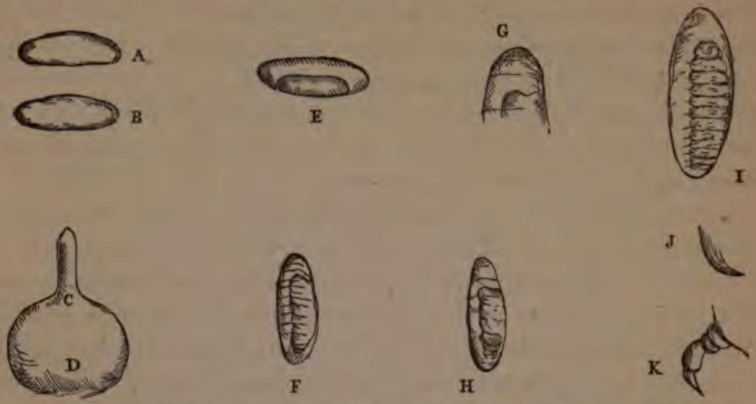
Returning now to a point passed over for the sake of presenting the observations with some degree of continuity. Up to June 17th I had not been able to discover the *Meligethes* eggs; but, finding in rape that I was specially examining that there were larvæ of most minute size in the buds, I went on opening the undeveloped blossoms till I came on two eggs in a rape bud, one egg placed on an anther, the other dropping out from the bud as I opened it, these eggs corresponding in colour, shape, size, and texture with the eggs of the *Meligethes* of which I had specimens laid by the beetles under careful inspection.

One of the eggs I found in the rape bud appeared opaque in the middle, as if the future larva were partially formed: this was in the evening, and the next day, about 1.30 p.m., I noticed a discolouration at one end of each of the rape eggs resembling the head of the contained larvæ, showing through the pellicle of the egg. About 5.30 p.m. I found one egg empty, the other appeared only as an empty shell, and on the bud were two minute larvæ exactly resembling those of which I had examined so many lately.

These observations were made upon the insects in their natural state, and without any artificial restraint; the following were made upon the insects placed in confinement, and under constant observation:—

On June 19th, I imprisoned some of the perfect insects under a small bell-shaped glass, fitted on a cork base, and with a stopper removable at pleasure, so that I could watch the inmates and supply what might be necessary without materially disturbing them. Next morning (June 20th) a few eggs were visible, and later in the day a few more, but, on the following day, some of the eggs were missing; and, conjecturing from the fragments lying about that the *Meligethes* had been feeding on their own eggs, I removed the beetles from the glass.

These eggs were similar to those found in the rape buds, the shape slightly variable, and appearing to me to vary with the state of development of the contained embryo; but in both cases I found eggs of the shape sketched A and B, that is, narrowly ovate, about twice as long as their own width throughout, and with the two extremities obtuse.



The ovipositor of the female *Meligethes* is so enormously distended by the egg, that till seeing its exit, it is almost impossible to believe it could find a passage: the proportion might in diagram-form be conveyed as in the cut—C, channel of exit; D, distended mass above.

On the 21st of June, the day after the deposit of the *Meligethes* eggs, the commencement of the development of the contained larvæ was perceptible as a misty substance nearly filling the egg (see E in cut).

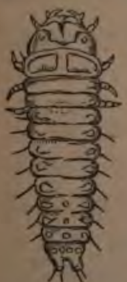
On the 23rd, the larval shape was more defined, the egg showing as clear at each end, and on one side, and the contained embryo as an obtuse oval form occupying about two-thirds of the length and breadth, and lying against one side of the containing pellicle.

On June 24th, that is, four or five days after the laying of the eggs, several of them hatched, and I could see no difference between the specimens of the larvæ hatched from these eggs procured immediately from the imprisoned beetles and those previously examined on the infested rape plants, and in their habits also the resemblance was to be found. The caudal foot was used for assistance in progression, and the newly-hatched grub fed greedily on the anther of the rape.

In another series of observations, the parents were imprisoned on June 26th, and on July 2nd, as the eggs were beginning to hatch, I placed one on a microscope slide for continuous observation under an object glass of one inch focus.

The first observation taken at 8.22 a.m. on the 2nd of July, shewed the larva occupying one side of the egg as previously described, the extremity marked F in the cut perceptibly moving to and fro in the egg. 10.20, as an opaque object, the ring-like banding of the egg now showed noticeably. 11.6, the portion of the larva (G) now showed its figure plainly. 1.22 p.m., the lower extremity now showed as at H. 3.57 and 4.8, no special change. 9.55, the larva was now almost constantly thrusting its smaller extremity backwards and forwards, a movement of this portion having been noticeable at intervals all day.

July 3rd, at 7.57 a.m., the head of the larva was visible in the egg, also a row of spots indicating about nine of the larval segments, and the tip of the caudal extremity was still moving. 8.8 a.m., the head showed plainly (of a purple colour), and the outline of the segments was also clearly visible nearly up to the tail, with a spot of transparent appearance on each segment; the tail did not yet show its form clearly. 8.30, the bristles on each of the segments of the larva now showed plainly on the one side exposed to view. 8.39 a.m., I in cut. 9.23 a.m., the larva was now coming out of the egg, arching up the middle of its back in its struggles, and the head and tail appearing forced to the extremities of the egg. At 9.26 the larva walked out of the egg head foremost, transparent and colourless, save two brown spots, which I presumed to be the eyes. 9.29, the larva now appeared to be about one-third longer than the egg it had just quitted. 12.40 p.m., the head of the larva had now re-assumed a purple colour, and purple spots showed on the first three segments, the colour of the spots being paler than the head, and getting gradually paler on the other segments to the tail.



When full grown the larva is yellowish-white with brown jaws; but in its early stage, its appearance is as follows:—general colour whitish, head transverse, triangular, broader than the succeeding segments, dark shining purple, with depressed wrinkled line down the centre and white line across bending upwards, so as to form a shield-shape marking pointing towards the top of the head. Segments with purple spots paler than the head, the segments immediately behind the head with two purple patches reaching nearly to the middle of the back, the succeeding segments with one spot on each side, the three preceding the tail with an additional one in the centre, and the tail itself with the three spots confluent and purple tips to the lobes. Legs purple. Jaws sharply pointed and much curved, slightly overlapping each other at the tips (J in cut). Antennæ four-jointed (K in cut). Each lobe of the tail with two bristles, and the other larval segments with one on each side, excepting the segment immediately behind the head, which has on either side two bristles or more.

This description was taken from a larva still of such minute size as to be barely perceptible to the naked eye, and (presumably) not more than twelve hours old.

In the above recorded investigations, a few points struck me particularly: the first being the coincidence between the duration of the life of the larvæ and that of the flowering stems on which they were placed. Next, the apparently enforced *dropping* down of the larva when its time of feeding was complete; from the size of the plants compared with that of the insect, the journey would have been one of enormous length, and without provision, by the way, the hardened stem not affording the little collections of sap in which the larvæ appeared to delight. Another point was the position of the larva in the egg. From the great relative size of the portion (about the third or fourth segment) in the egg which, until almost complete development, represented the extremity opposite to the head, I think that until almost the time of hatching the larva lay bent on itself, and then suddenly straightened itself, throwing the head into the natural position. The fourth point was the colour (in the egg, and from a few hours after hatching, the larva showed patches of purple colour) as it stepped from the egg, and for a few hours these parts, as the insect generally was quite white. Possibly this is well known in other cases, but I do not myself understand the reason of it.

Torquay: *March 2nd,* 1874.

ON TWO NEW COLEOPTEROUS INSECTS BELONGING TO THE FAMILY *RUTELIDÆ.*

BY CHAS. O. WATERHOUSE.

RUTELARCHA, *g. n.*

Closely allied to *Rutela*, but separated by the following characters. Antennæ with the basal joint thick, the second smaller, the third to seventh gradually decreasing in size, the eighth to tenth forming an elongate club. Clypeus separated from the head by an impressed line. Thorax with a broad rounded lobe over the scutellum; the lobe not *emarginate.* The large claw to all the tarsi bifid at the apex.

RUTELARCHA QUADRIMACULATA, *n. s.*

Oblonga, nitida; capite, scutello thoraceque nigris, hoc lateribus ochraceis; elytris ochraceis maculis quatuor nigris; corpore subtus pedibusque flavis nigro-lineatis, tarsis piceis, capite thoraceque utrinque rugulis instructis. Elytris fortiter striato-punctatis, apicibus fere lævibus. *Long.* 8 *lin., lat.* 5 *lin.*

Convex, scarcely broader posteriorly than in front, the sides sub-parallel with a very slight constriction below the shoulders. Head with the vertex shining, forehead with a slight impression; the anterior margin and the clypeus covered with transverse rugulæ, those on the forehead stronger; the clypeus in front narrowed, and with a small triangular incision. The thorax is two-fifths broader than long, broadest behind, black, with the sides broadly orange-yellow, in the middle of which margin is a small black spot on each side, the discoidal black portion is in the middle shining and scarcely visibly punctured, but bordered on each side by a longitudinal band of rugulæ (or strong confluent punctures) reaching nearly to the posterior margin, and connected with the hind margin by some strong punctures; the orange portion is also strongly punctured anteriorly, and on the extreme margins; the anterior margin is bisinuate, the anterior angles very slightly prominent; the sides evenly rounded, with the margins incrassate, especially behind; the posterior margin broadly lobed in the middle. Scutellum about half as long as broad, shining, almost impunctate. Elytra of the same width at the base as the base of the thorax, but a trifle broader immediately below the shoulders, very slightly broader posteriorly, with the apices conjointly broadly rounded, strongly punctured in longitudinal lines, the apex, however, nearly impunctate; entirely orange-yellow with the exception of a small round spot below the shoulder, and a large ovate transverse spot a little below the middle, and the suture at the extreme apex, which are black. Pygidium pale yellow, with two minute black dots, shining and impunctate; the under-side yellow, the various parts and segments narrowly bordered with black. Legs yellow, with the upper side of the anterior femora, a spot on the intermediate and posterior femora, and the tarsi, blackish. Antennæ yellowish.

Hab.: Penang? Coll. Brit. Mus. (Banks.).

Of this beautiful and remarkable insect, which was found in a miscellaneous drawer in the Banksian Cabinet, without locality, I have seen two other specimens, in Mr. Pascoe's possession, from Penang.

RUTELA SANGUINOLENTA, *n. s.*

Breviter ovalis, nitida; nigra, thoracis lateribus, scutelli basi, elytrorum basi apiceque sanguineis; mesosterno et femorum posteriorum margine antico flavis. *Long.* 8 *lin., lat.* 4½ *lin.*

Moderately convex, but slightly depressed on the back of the elytra, very shining. Head not very thickly punctured; the clypeus thickly and finely punctured. Thorax convex, two-fifths broader than long, sparingly but distinctly punctured above, more finely punctured on the sides which are bright red, the red portion with a black spot in the middle; the anterior margin is gently sinuate; the sides much rounded; the posterior margin rounded in the middle, gently sinuate on each side. Scutellum triangular, with the sides straight, as long as broad, very sparingly and finely punctured. Elytra scarcely broader than the thorax, as long as broad; at the extreme base as broad as the base of the thorax, but immediately widening at the shoulders to the width of the thorax across its middle, becoming a trifle broader at the posterior two-thirds, the apex of each elytron broadly rounded; the dorsal region is sparingly and delicately punctured; there is a transverse red band at the base, which, however, does not reach the sides; the apex of each elytron has also a lunate red spot, leaving the extreme margin black. The pygidium is thickly transversely striated, with an obscure red spot on each side at the apex. The sides and the apical segment of the abdomen are also finely striated. One or two small spots at the base of the legs, the front of the mesosternum, and the anterior margin of the posterior femora, are yellow.

Hab.: Ocaña, N. Granada. Coll. Brit. Mus.

In the British Museum Collection there is a variety from Columbia which bears the manuscript name of "*rufipennis*," differing from the specimen which I have here described as *R. sanguinolenta* in having the thorax rather less rounded at the sides, and it as well as the elytra somewhat strongly punctured; these latter are entirely bright red.

British Museum: *July 3rd*, 1874.

DESCRIPTION OF A NEW GENUS AND SPECIES OF *COLEOPTERA* FROM JAPAN

BY THE REV. H. S. GORHAM AND GEORGE LEWIS.

Family *ENDOMYCHIDÆ.*

CYANAUGES, *g. n.*

Antennæ clavâ laxe articulatâ, articulo ultimo oblique truncato. Palpi maxillares basi constricti, articulo ultimo acuminato. Prosternum latum, apice depresso.

The insect described by Mr. Lewis in the following notice will form the type of a new genus of *Endomychidæ* proper, its near ally being, as I think, *Endomychus*. It is, however, abundantly distinct from any genus in that family by the form of the maxillary palpi. These organs, which in this family have usually the terminal joint truncate, in the present genus have them conically acuminate. The form of the prosternum, taken with the general outline of the insect, induces me to believe its right place will be as I have placed it. Being unique at present, it is of course impossible for me to give accurately the form of the labium; it appears, however, to agree with the rest of the genera near which I place it in being longer than wide. Six segments are distinctly visible in the abdomen. I think, however, the specimen is a female; no secondary sexual characters are to be noticed.

Shipley: June 10th, 1874. H. S. GORHAM.

CYANAÜGES GORHAMI, *n. s.*

Ovatus, niger, nitidus. Capite thoraceque sub-lævibus. Elytris nigro-cæruleis, haud striatis, sub-fortiter punctatis. Subtus niger vix punctatus, abdominis apice in medio testaceo. Antennis nigris, palpis pedibusque nigro-piceis. *Long.* 2¼ *lin.*

Of this pretty species, for which a new genus has been formed by the Rev. H. S. Gorham, I have received during the present year a single example from Kawatchi, in the S.E. of Nipon, and it is with much pleasure that I dedicate it to my friend, the author of the genus.

Norbiton: *June* 10*th*, 1874. GEO. LEWIS.

DESCRIPTION OF A NEW SPECIES OF *CREMASTOCHEILUS* FROM CALIFORNIA.

BY PROF. J. O. WESTWOOD, M.A., F.L.S.

CREMASTOCHEILUS CRASSIPES, *sp. n.*

Magnus, latus, supra deplanatus, niger, capite punctato; clypei margine antico parum recurvo semicirculari; pronoto lateribus rotundatis, caput versus augustioribus, dorso parum convexo, angulis anticis fere ad oculos porrectis subacutis, impressione sat profunda intra angulos notata; angulis posticis in cornu breve retro productis; margine postico curvato, disco punctato, punctis præsertim lateralibus majoribus et rotundo-cicatricosis; breviter setoso; elytris latis, dorso planis, punctis ovalibus postice incompletis, parum profundis, guttis minutis strigisque brevibus tenuissimis interdum undulatis, prope suturam albis parce notatis; pedibus brevibus, latis, crassis, fossoriis, tibiis anticis dentibus valde obtusis, tarsis multo brevioribus, articulis latioribus quam longis; mento postice integro, glabro. *Long. corp. lin.* 8½; *lat. humer. elytr. lin.* 3½.

Habitat in California. Mus. Parry.

This very distinct species belongs to the group with the mentum entire in the middle of its hind margin, and in which the anterior tarsi have the terminal joints not suddenly dilated; but differs from the two species hitherto described as having the legs short and fossorial (*C. Schaumii* and *angularis*), by having the legs comparatively much broader and shorter, with the joints of the tarsi broader than long.

Oxford: *June 24th, 1874.*

DESCRIPTIONS OF NEW SPECIES OF BUTTERFLIES.

BY W. C. HEWITSON, F.L.S.

HARMA AMENIDES, *sp. n.*

Upper-side : ♀, dark-brown. Both wings with the usual black linear spots in the cell; both crossed at the middle by a common straight band of white, broadest at the costal margin of the anterior wing, where it is divided into four spots; both wings with a sub-marginal series of white spots (pyramidal on the anterior wing) bordered below with black.

Under-side : blue-white, clouded with brown on both sides of the central band; a sub-marginal undulating brown line.

Exp., $3\frac{2}{10}$ inch. Hab., Gaboon (*Rogers*).

Much like *H. Ciceronis* of Ward, but without the second sub-marginal band of white spots.

ABISARA RUTHERFORDII, *sp. n.*

Upper-side : ♂, dark red-brown. Anterior wing with the costal margin and apex rufous: the inner margin convex. Posterior with a rather large blue spot towards the apex.

Under-side : red-brown. Both wings crossed below the middle by two bands of white (tinted on the anterior wing with white). Anterior wing with one black ocellus with white pupil, and a minute spot near the apex. Posterior wing with a larger bifid black ocellus bordered with orange, and marked by four minute white spots near the apex, and a sub-marginal line of white.

Exp., $1\frac{9}{10}$ inch. Hab., West Africa (Cross River, *Rutherford*).

This species was sent to me with a thousand others from the Cameroons and Cross River, by Mr. Rutherford. There are many beautiful species, and in great perfection, but undoubtedly the only new one is that which I have now described.

ERESIA EUTROPIA, *sp. n.*

Upper-side : ♂, dark-brown. Anterior wing with a triangular rufous band from the base below the median nervure; crossed obliquely at the middle by a band of four yellow spots, and beyond the middle by a second band of four similar spots; a small spot of yellow near the apex. Posterior wing rufous, with the costal and outer margins dark brown; the outer margin marked by a series of very indistinct pale spots.

Under-side as above, except that both wings have a sub-marginal series of spots, yellow on the anterior wing, white on the posterior wings.

Exp., $1\frac{19}{20}$ inch. Hab., Panama.

Nearly allied to *E. dismorphina* of Butler.

NOTES ON A COLLECTION OF BUTTERFLIES RECENTLY BROUGHT FROM CAPE COAST, WEST AFRICA, WITH DESCRIPTION OF A NEW SPECIES FROM NATAL.

BY A. G. BUTLER, F.L.S.

My friend Charles Harton, Esq., of Manchester, recently wrote to me, advising me of the arrival of a rather fine collection of West African butterflies, from which the following species, formerly desiderata to the cabinets of the British Museum, have been selected:

CHARAXES EPHYRA, Godt. ♀.

The female of this species differs from that of *C. Ethalion* in the straighter costa of primaries, the white band of which is not clouded with blue, and is of the form of the pale tawny-ochreous band of *C. Viola;* the basal area is also richly shot with purple: this insect is very interesting, as proving the entire distinctness in both sexes of *C. Ethalion* and *C. Ephyra.*

ROMALEOSOMA SARCOPTERA, Butl. ♂.

A fine male of this rare species, differing in no respect from the type.

PSEUDACRÆA STRIATA, Butl. ♀.

The male was also in the collection and is now in Mr. Druce's hands.

PSEUDACRÆA BOISDUVALII, Doubl. ♂, ♀.

The male of this species is exceedingly rare; Mr. Trimen speaks of having seen a specimen from Old Calabar in Mr. Hewitson's collection; he, moreover, figures the Natal species (both sexes) as a variety of the same—influenced, no doubt, by a curious, apparently intermediate, aberration of the latter in the South African Museum: as I now have an opportunity of comparing the two males, and as I find that they mimic respectively two entirely distinct species of *Acræa* (referable to two of Doubleday's sections of the genus), I describe the Natal species as follows:

PSEUDACRÆA TRIMENII, *n. sp.*

Panopea Boisduvalii, var., Trimen, Trans. Linn. Soc., xxvi, pl. xxvi, figs. 8, 9 (1869).

♂. Wings above reddish-tawny (possibly crimson in fresh specimens), primaries spotted and streaked as in *P. Boisduvalii,* apical half of wings translucent-brown, crossed by a broad salmon-coloured belt, from sub-costal nervure to third median branch, and thence continued, as two large decreasing spots, into median interspaces; secondaries spotted and margined, as in *P. Boisduvalii:* body very similar to the same: wings below paler than above, secondaries with a whitish nebula on end of cell, and origin of median branches, black spots smaller than in *P. Boisduvalii;* no pale yellow tint on secondaries. Expanse of wings, 3½ inches.

Port Natal (Gueinzius). B. M.

This species mimics *Acræa Acara* of Hewitson, as Mr. Trimen has already pointed out, the latter, however, is very distinct from *A. Zetes*, of which *P. Boisduvalii* was supposed to be an imitation; the male of *P. Boisduvalii* is a narrower-winged, more slenderly built insect than *P. Trimenii;* the primaries are translucent-black, with the nervures, internervular folds and spots black; the basal third is purplish; there is a quadrate patch of bright salmon-colour at anal angle, interrupted by the spots and the last black dash, and margined externally with black; the secondaries are produced and acutely pointed at anal angle; the central area and sub-marginal spots are scarlet; the abdominal region is ochreous; below, the wings are very similar to those of the female, but brighter in colouring; the secondaries are coloured much as in some *Romaleosomæ*, pale yellow, tinted with rosy, with a bright rosy flush in cell, and on the sub-marginal spots, the costal area being tinted with greenish: it mimics *Acræa Egina* of Cramer, although the female certainly bears a nearer resemblance to *A. Menippe.*

ACRÆA, ♂ ♀, possibly a new species.

ACRÆA, ♀ (*Admatha* group), probably a new species.

MYCALESIS, *sp.* apparently new.

BELENOIS HEDYLE, ♀, Cramer.

EPITOLA, *sp.*

PHYTALA ? two species: also three pretty little species of *Iolaus*, one of which (described, I believe, by Hopffer) was represented in the collection by eight or ten examples.

I may mention that the following species were also represented, and have, as I understand, since passed into Mr. Hewitson's hands:—two examples of a fine *Romaleosoma*, *R. Pratinus*, several respectable specimens of *Harma Egesta*, with other species of less interest.

British Museum: *June*, 1874.

NOTES ON BRITISH *TORTRICES.*

BY C. G. BARRETT.

(*continued from p.* 31).

Sericoris micana, Hübn., Fröl.—Dr. Wocke changes this to *olivana*, Tr., but wherefore I cannot understand, for though he appends a ? to his reference to Hübner, he does not to Frölich, and his name is evidently two years older than that of Treitschke. I think, therefore, that *micana*, Fröl., may safely be retained as the name of this species. An allied species, to which Treitschke gave the name of *micana*, is now altered to *stibiana*, Gn.

Sericoris alternana, Wilk. (Curt. ?).—I do not think that this name can be assigned to Curtis. His description, as quoted by Stephens, is not applicable, or rather is more applicable to *irriguana*, or the dull, dark olive form of *lacunana*, which occurs along with *alternana* in Scotland. Wilkinson's description, however, is excellent, and his name must be the reference appended to the species. Nevertheless, Dr. Wocke has made a most extraordinary mistake respecting it. He calls it *altern*ELLA, Wilk., and places it as a synonym of *umbrosana*, Freyer, a species closely resembling *urticana*, but larger, and having the horizontal pale streak in the dark fascia as in *lacunana*. From this *alternana* is very distinct. Mr. Doubleday in his List calls it *Daleana*, Dbld., on account of the existence of another *alternana* (or rather *alternella)* in the genus *Sciaphila*, and a third in *Cochylis*, but I see no fear of any confusion from the adoption of the same name in such distinct genera, and as, moreover, there is no description or figure appended to the name *Daleana*, I think it absolutely necessary to retain Wilkinson's name.

This species seems to be totally unknown on the Continent, but the female resembles some of the forms of *irriguana* or *metallicana* to some extent.

Sericoris irriguana, H.-S.—Recorded as British by Mr. Nicholas Cooke (Ent. Mo. Mag., Vol. viii, p. 255), and noticed in the Ent. Ann., 1872, under the name of *metallicana*, Hübn., of which species Dr. Wocke considers *irriguana*, H.-S., to be a variety.

Of *metallicana*, Hübn., Heinemann writes (Tortricina, p. 119)—
"Anterior wings olive-green dusted with blackish, with two olive-
"yellowish fasciæ, margined with lustrous dark yellow lines, the pos-
"terior fascia oblique, not forked.

"This species has, amongst its allies, the broadest anterior wings
"with distinctly curved costa, and the hind margin not very oblique

"The pale fasciæ are broader, the posterior one runs in a straight "direction towards the anal angle, whereby the dark middle fascia is "expanded towards the inner margin."

Of *irriguana*, H.-S., he says—"Anterior wings with slightly curved "costa and straight hind margin, olive-greenish, with more or less "distinct dark fasciæ bordered by pale leaden lines. Unicolorous "specimens of this species occur which are quite like *sudetana*, and "only to be distinguished from it by the less curved costa, the rather "straight but oblique hind margin, and the sharper pointed apex of "the anterior wings. Sometimes the costal streaks and the leaden "lines are almost entirely wanting, &c., &c."

Now, I have a series of specimens of this group from different parts of the Continent, labelled (rather promiscuously) *metallicana* and *irriguana*. Some (bearing each name) are broad winged, with curved costa; hind margin not very oblique, and in the breadth and disposition of the fasciæ also, agree closely with the above description of *metallicana*. Others with narrower wings, straighter costa and hind margin, and very pointed apex, agree exactly with the description of *irriguana*, and with our Scotch specimens, as also do Herrich-Schäffer's figures, 424—5. These Scotch specimens all belong to the variety without silvery lines (although Dr. White tells me that even these are slightly perceptible when the moths are alive). The majority of them are darkly marked as in Heinemann's description, and a few are almost unicolorous, closely resembling *sudetana*, Standfuss. I am therefore satisfied that our insect is truly *irriguana*, and also strongly disposed to the opinion that it is distinct from *metallicana*, Hübn., although the difficulty of deciding, from the similarity and parallel variation of the species of this group, is so great, that I should not feel at all surprised if the sight of series from new localities should completely upset the conclusions that have now been arrived at with no little difficulty.

As no detailed description of *irriguana* has been published in this country, it may be worth while to append one, although that already quoted from Heinemann is very clear.

Head, palpi, and thorax dark grey, thickly sprinkled with pale yellowish scales; antennæ dark grey; fore-wings pale buff with an olive tinge, and with dark greyish-brown markings; basal blotch interrupted, produced on the fold almost to the central fascia; central fascia also sometimes interrupted above the middle, irregular, toothed exteriorly. Beyond it is a blotch at the anal angle, and an oblique cloud across the apical region; sometimes these unite and form a fascia before the hind margin. On the costa towards the apex are three short streaks or spots; cilia pale ochreous dusted with black; hind-wings dark grey; cilia straw-coloured, with a dark line at the base.

The female is generally dark, the markings sometimes forming *three* irregular fasciæ.

The males are very variable, some of them having hardly a trace of the dark markings, as already observed. Alar. exp. 7—8 lines.

The most nearly allied species that we have is *alternana*, the females of which bear some resemblance to this species, but have broader, straighter fasciæ, and less acute wings, while the males are much larger, with broad indistinct fasciæ, and the costa and hind margin more rounded than in either *irriguana*, *metallicana*, or *sudetana*, so that there is little danger of mistaking it.

As recorded in the Ent. Ann. by Dr. Knaggs, *irriguana* has only been taken as yet in Inverness-shire and on the mountains near Braemar, in Britain, and I am indebted to Dr. F. Buchanan White for the opportunity of examining the fine series which he has obtained in the latter locality.

I have no knowledge that the allied *metallicana*, Hübn., has ever been taken in this island, although Scotland is given as one of its localities by Dr. Wocke.

Sericoris fuligana, Haw.—Called by Mr. Doubleday, in his List, *abscissana*, Gn., MSS., but Haworth's description is tolerably accurate, and I think his name should be retained, as there is little probability of the species being confounded with *Penthina fuligana*, Hübn.

Sericoris cespitana, Hübn.—In some localities an exceedingly variable species, in others more constant.

Sericoris Doubledayana, Barrett.—Described in the Ent. Mo. Mag., Vol. viii, p. 246, and Ent. Ann., 1873, p. 45. Since taken in some numbers in the Norfolk fens.

Sericoris politana, Haw.—Called by Mr. Doubleday, in his List, *lepidana*, Curt., but Haworth's is the earliest name. *Sylvana*, Tr., is the paler variety of this, and is united with it by Dr. Wocke.

He places this species, with *Cnephasia cinctana*, among the typical *Tortrices* in the genus *Lophoderus*, between *ochreana*, Hübn., and *ministrana*, Linn., and, at a greater distance, between the species of the genera *Tortrix* and *Lozotænia* of Wilkinson.

Sericoris littoralis, Curt.—This species is liable to curious variations, some specimens being totally destitute of the typical markings, and having faint oblique clouds only on the fore-wings.

Sericoris euphorbiana, Frr.—Within the last few years this species has been re-discovered on the south coast, and its larva found feeding upon spurge. Many specimens have been reared by my friend Mr. Howard Vaughan, and others.

Sericoris latifasciana, Haw.—M. Jourdheuille says of this species:—"Larva in silken tubes under moss on trees."

Sericoris bifasciana, Haw.—I have found this species occasionally in Norfolk.

Mixodia Schulziana, Fab.—I found this species rather common in Woolmer Forest some years ago, the specimens being large and very richly marked. Specimens from Germany and Switzerland are, however, much larger.

Mixodia palustrana, Zell.

Lobesia reliquana, Wilk.—Prof. Zeller assures me that this is not *reliquana*, but *permixtana*, Hübn., and this, Mr. Stainton tells me, is confirmed by Hübner's figure. Haworth and Wood are therefore correct. Prof. Zeller has sent me specimens of *reliquana*, Hübn. (now known as *botrana*, Schiff.), and these show it to be a broader-winged insect, with markings similar to those of our species, but all dilated and diluted. This species (*botrana*) feeds on vine, but ours (*permixtana*) seems partial to oak. M. Jourdheuille, however, states that its larva feeds on *Anchusa officinalis*. This requires confirmation.

Dr. Wocke, in his List, misapplies the *reliquana* of Wilkinson and Stainton's Manual, making it synonymous with *botrana*, Schiff., and not with *permixtana*, Hübn., although he quotes Haworth and Wood under the latter head.

(*To be continued*).

ADDITIONS TO THE LIST OF BRITISH *HEMIPTERA*.

BY EDWARD SAUNDERS, F.L.S.

CYMUS MELANOCEPHALUS, Fieb., Eur. Hem., p. 203, 2.

Head obscure brown, darker than the thorax. Thorax reddish-brown, generally darker at the sides, largely and deeply punctured, with a rather deep collar in front, from the middle of which runs a short, concolorous keel, scarcely reaching to the centre of the disc. Scutellum dark brown, without any central keel, strongly punctured, and in some specimens transversely rugose. Elytra lighter in colour than the thorax, each with a clouded spot near the basal angle of the membrane, largely and densely punctured all over. Posterior margin of the corium dark, especially at the apex. Membrane hyaline. Under-side reddish-brown. Length 1¾—2 lin.

On rushes, by sweeping, near Chobham, rather sparingly; June, 1874.

OBS.—Differs from both our other species by the dark colour of the head, the concolorous keel of the thorax, and the absence of any keel on the scutellum. It is allied in shape to *C. claviculus*, but, besides the above characters, it may be distinguished from that species by the punctuation of the corium, which is close and irregular all over; whereas, in *claviculus*, along the claval suture, there are two regular sub-parallel rows of punctures, with a rather wide smooth space between them, while the rest of the corium is closely punctured.

Litosoma Douglasi, *n. s.*

Pale green; clavus, outer nerve of the corium, and the external margin of the cuneus, darker. Antennæ with a brownish tinge. After death, the head, the front of the thorax, the legs, and the sides of the elytra more or less widely, become of a yellowish-brown colour. Surface covered with short, curved, white hairs, mixed with longer nearly straight black ones; these black hairs are only observable under a strong lens. Membrane slightly clouded; nerves pale greenish-yellow, yellowish-brown after death. Tarsi brownish, black at the apex. Antennæ: first joint about two-thirds as long as fourth, second joint as long as third and fourth together, fourth about—or not quite—two-thirds as long as the third. Length 2 lines.

On broom, Woking, July, 1871 and 1874.

Obs.—The short third and fourth joints of the antennæ will at once distinguish this species from its allies. I can find no description of any European species to agree with it, and therefore describe it as new. I have named it in honour of Mr. J. W. Douglas, who has rendered me much assistance in the study of this genus, and whose knowledge of our British *Hemiptera* is so well known.

Wandsworth: *July*, 1874.

Occurrence in Britain of Abdera triguttata, Gyll.—I have much pleasure in being able to record the capture in this country of *Abdera triguttata*, Gyll., a species occurring somewhat rarely in Sweden, France, and Germany. It is hardly to be compared with either of our other British *Abderæ*, but is a little like *bifasciata*, though larger and much broader (especially behind) in proportion, with the markings of the elytra very different. It varies somewhat (from 1¼ to 1¾ lines) in length and very much in colouration, some individuals being mostly lurid-testaceous, with the disc of the thorax, a small scutellar patch and a larger triangular marking on each elytron below the middle dark, whilst others (and those would seem to be the type form) are pitchy-black, with two light ovate spots below the scutellum, pointed towards the suture, down which the light colour runs narrowly until it forms a common larger pale spot before the apex. Every intermediate grade appears to exist: and, from the absence of mention by Gyllenhall or Thomson of any varieties in such a variable insect, it would seem that no large numbers of it can have come under the observation of either of those authors. The whole insect is very pubescent, rather coarsely punctured all over; and has the two basal joints of the antennæ testaceous. Found, somewhat commonly, in company with *Zilora ferruginea*, by my friend Mr. Allin and myself, under (and in chinks of) bark of young dead standing Scotch firs, at Aviemore, Inverness-shire, in the beginning of June last. It is one of the most fragile insects I ever met with.—G. C. Champion, 274, Walworth Road, London.—*July* 10*th*, 1874.

Coleoptera at Aviemore, Inverness-shire.—In the beginning of June last, Mr. Allin and I had about a fortnight's collecting in the above neighbourhood (a district hitherto, I believe, entirely unworked by entomologists), where, in addition to very extensive fir woods, which just now are in a young state of growth (the older trees having been all felled some years since), we had the higher Grampians, Braeriach, Ben Muich Dhui, Cairngorm, &c., in our vicinity. Most of the species observed were (with one or two exceptions) similar to those found at Braemar, as might be expected, Aviemore being only thirty miles north of that place, on the other side of the Grampians. We were, doubtless, at the wrong time for many things, as several conspicuous common species did not put in an appearance; however, what we did get was little and good. Amongst many other species captured by us, I mention the following:—

Carabus catenulatus; an entirely black and also a pitchy coloured form occurred on the mountains, at an elevation of 3000 feet and upwards. *Amara alpina;* I found a single ♀ example of this very rare British species in moss, at an elevation of about 2500 feet; many days working failed to produce more. *Hydroporus* 9-*lineatus;* vars. occurred, in company with the type form, in which the dark lines on the elytra were almost obliterated. *Agabus Solieri;* abundant in a clear weedless loch (which owed its supply of water to the great quantity of melting snow), on Braeriach, at an elevation of quite 3000 feet. The beetle was to be found in clusters of often a dozen, hiding under the stones at the edge, and easily captured by hand. *A. guttatus* occurred with it, but not a single *bipustulatus*. *Oxypoda rupicola*, Rye, *edinensis*, Sharp, and *aterrima;* under stones and in moss on the hills. *Bryoporus rugipennis* and *Mycetoporus tenuis* occurred very rarely in moss high up, generally near the tops of the mountains; I even found a specimen of the latter under a stone at the cairn on Braeriach (4265 feet elevation). *Xantholinus lentus;* very sparingly under bark of Scotch fir, not always caught when seen, as it is very fond of dropping the instant the bark is removed. *Homalium Heeri* (? *vile* var.); under bark of fir, in company with type *vile*. *Rhizophagus politus*, a very small individual under bark; hitherto not recorded from Scotland. *Cryptophagus parallelus*, Bris.; rarely, by beating cut fir tops lying on ground, and not accompanied by *C. dentatus*. *Lathridius rugosus*, with pitchy-brown elytra, in some small quantity, in the snuff-like fungus on alder so much liked by *Liodes* and *Sphindus* (I have recently taken the same *Lathridius*, wholly black, in the like fungus at Loughton). *Trichius fasciatus;* dug out of a birch stump; we were probably too soon for this species. *Eros Aurora;* one, under birch bark. *Ernobius nigrinus;* rarely, by beating dead fir tops. *Cis punctulatus;* common, under fir bark, in company with *Abdera triguttata*. *Zilora ferruginea;* rather commonly by barking young dead standing firs. It varies considerably in size (and colour) the larger specimens being fully twice the length of the smallest. *Carida flexuosa;* rarely, in hard woody fungus on alder. *Dircæa*, *Tetratoma ancora*, and *Orchesia minor;* occasionally under fir bark. *Anthonomus varians* and *Magdalinus phlegmaticus;* rarely, by beating fir. *Brachonyx indigena;* common, but very local, one very hot sunny day (rare afterwards), by beating firs. This species drops very readily, and sticks to the first place it comes to, and if not found sticking round the edges of the beating net, takes a long time to find in the bottom of the net as it clings to, and hides amongst, the debris of the young shoots, &c. *Pissodes notatus*, *Rhinomacer*, *Asemum*, and *Pogonocherus fasciculatus* also occurred occasionally by beating fir. *Hylastes cunicularis;* rare, by beating dead fir tops, &c. I might make this list very much longer, but have only selected the most noteworthy species.—Id.

Additions to the British list of Tenthredinidæ.

Dineura stilata, Klug, Blattw., No. 72; Hartig, Blattw. und Holzw., 227, 2; *Nematus stilatus*, Thomson, Hymen. Scand., i, 82, 3. I captured both sexes of this species at the end of last month on *Pyrus aucuparia* in Cadder Wood.

Selandria grandis, Zaddach, Beschreibung neuer oder wenig bekannter Blattwespen, p. 36 (1859),=*S. interstitialis*, Thomson, Hymen. Scand., i, 237, 2 (1871). This species will, I believe, prove to be common in Britain; but it is very apt to be passed over for the familiar *S. serva*, with which it agrees nearly in colouration, but differs in a few other points, notably in having the second recurrent nervure joined to the second sub-marginal nervure; and it is, moreover, a much larger insect. I have taken it in several places in Scotland, and have also seen an English example captured by the Rev. T. A. Marshall. It is very desirable that both forms should be bred, in order to see if the larvæ differ.

Nematus histrio, Le Pel., Monographia Tenthredinetarum, 63, 185 (1823),= *N. rufescens*, Hartig, Blattw., 191, 15 (1837); Thomson, Hymen. Scand., i, 130, 56. Bred from a pale green larva, with a darker green dorsal line, bordered on each side by another line, which, when the creature is feeding, is white; and all three disappear after it has spun up. The sides are dotted with small points. The larvæ were discovered (not uncommonly) feeding on *Salix aurita*, on the hill-sides at Glenelg, in June, and spun up at the end of that month or the beginning of July, the flies appearing the following spring.

I noticed a curious circumstance with two of these larvæ; they inhabited one common cocoon, which was a little more than double the ordinary size, and was also of a much more oval shape. Probably, it was merely two cocoons joined together; but there was no partition separating the inhabitants. I do not at present recollect whether they reached the perfect state or not.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: *14th July*, 1874.

Chrysopa tenella, &c., at Weybridge.—On the 4th inst., I took two examples of this rare or overlooked species in St. George's Hill Wood. *C. aspersa, ventralis*, and *flavifrons*, were all tolerably common; but *Nothochrysa capitata*, of which I captured an example at this place last summer, was not to be seen. To my horror, I found that my favourite ponds in the wood had been drained off, but *Pyrrhosoma tenellum* still lingered. A single *Ephemera* proved to be the recently described *E. lineata*, Eaton.—R. McLACHLAN, Lewisham: *9th July*, 1874.

Note on Bolivian Rhopalocera.—Mr. Buckley, who has been out to Bolivia for me, has just returned with a very valuable collection of butterflies. He had received some packages in such a mutilated state that he at once resolved to be his own carrier of the collection which he was just about to send.

Like his former collections, it is in a state of the greatest perfection, and contains many new and some rare and splendid species: amongst them, *Morpho Godarti*, and *M. Aurora*. He had watched the *Morpho Godarti* for some time frequenting a grassy ledge upon the face of a precipice, hoping, but in vain, that it would come within his reach. He had to be let down by a rope to obtain it.

I have not yet examined the collection sufficiently to ascertain the number of new species, but have no difficulty in saying that there will be at least fifty: some of them very remarkable. Mr. Buckley will return to Bolivia again shortly.—W. C. HEWITSON, Oatlands: *July 11th*, 1874.

Description of the larva, &c., of Erastria fuscula.—To Mr. G. C. Bignell, of Devonport, my best thanks are due, not only for kindly supplying me with the larva of this species last autumn, but also for clearing up what had been the reason of my failing to procure it before.

One night in the autumn of 1857, the year in which I began collecting, I found a twelve-footed larva walking on the ground, which spun up at once, and during the next summer produced *E. fuscula.* Not having found it on its food, and seeing that the books with one consent gave bramble as the food, for many subsequent years I used to beat the brambles in the same locality, hoping to get more larvæ; and when I could take the moths, I used to shut them up with bramble sprays in order to try for eggs. But in neither case were my efforts successful,—and why? Last autumn, Mr. Bignell, whilst sweeping herbage at night, took several larvæ off a stiff grass, *Molinia cœrulea,* growing in damp places; these, on examination, he concluded to be *fuscula,* and this summer has proved his conclusion to be correct.

The secret of our previous puzzle is now out; one might have beaten brambles for ever without finding a larva.

The larvæ came to me on September 10th, 1873, and spun up by the end of the month; the moths appeared during the last week of May, 1874.

The full-grown larva is about three-quarters of an inch long, rather slender, and even in bulk throughout; the twelfth and thirteenth segments taper a little; the head full and round; fully developed ventral legs on segments nine and ten, with rudiments of legs on segment eight: in walking it is a semilooper; the colour on the back is pale yellow with a broad greenish pulsating dorsal vessel; the sub-dorsal is a thin line of clear yellow edged above with brown, and below with greenish; the round black spiracles placed on a thin reddish line; anal legs sometimes purplish; the usual dots on the back blackish ringed with reddish; the belly yellow, with its dots black.

Some of the larvæ have a more reddish tint, and have every line edged with decided red; with a brownish stripe between the lower edging of the sub-dorsal and the spiracular line, and below this again a yellow line, then a red line, and the belly dull, pale brownish.

The cocoon is very firmly and neatly made of a thin coating of silk, stuck all over with fine earth or sand, about four lines deep and two wide. Some spun among moss, by larvæ, which died, were not so close or tough, and were both longer and wider.

The pupa is about five-sixteenths of an inch long, cylindrical, stoutish about the thorax, the abdomen smaller and short in proportion, ending rather bluntly in a spike set with several curled-topped spines; the pupa skin very glossy, rich red-brown; the wing-cases more golden-brown; the eyes blackish.

By the kind help of the Rev. T. A. Marshall, I am able to add that the name of the ichneumon, which was bred about the middle of April from some of the cocoons, is *Protelus chrysophthalmus.* A saw-fly larva much resembling that of *fuscula* in colour, feeds with it on the same grass, but I have not found out to what species it belongs; and I shall leave some one else to guess which of the two is the first wearer, and which the mimic, of the colours of their common dress.—J. Hellins, Exeter: *14th July,* 1874.

Description of the larva, &c., of Pyrausta punicealis.—For larvæ of this species *I am indebted to* Mr. W. H. Harwood, who found them somewhat plentifully last year on *Nepeta cataria;* he had previously noticed that the perfect insects were never found far away from that plant, and hence, suspecting that the larvæ fed on it, he searched for them with success.

The larvæ (of the second brood) reached me on September 25th, 1873, feeding on the mint flower-heads under a confused covering of silken threads, for their work could not be called regular galleries; and they continued to feed for about three weeks; then they spun up in very tough cocoons of pale brownish silk, but how long they remained before turning to pupæ I cannot say. I bred some moths between the 16th and 23rd May, 1874, yet some little time after this date, viz., on June 11th, Mr. Buckler, on examining some of his cocoons in order to obtain a pupa case, found several larvæ still unchanged though quite alive. Whether these will remain on till the appearance of the August moths of the present year, or until the May brood of next year, we have not of course yet the power of deciding.

The full-grown larva is a little more than five-eighths of an inch in length (perhaps it grows longer when at large, for all the moths we bred were small, showing our larvæ had not attained full development), stoutest at segments eight, nine, and ten, thence tapering very rapidly to the tail, and more gradually to the head, which is the smallest segment; the colour is a dull green on the back, the dorsal line being of the same, only marked off with edgings of yellow; the spiracular stripe broad and yellowish, with a faint greenish line through it; the head and second segment pale brownish freckled with black; below the spiracles a double greenish line; the belly pale yellowish; all the usual dots distinct, being shining black and narrowly ringed with yellow; when full fed the larva becomes pinkish.

There seems to be a variety which is all over pale greenish, with no darker stripes or lines; and another which has a pale blotch of yellowish ground colour on the back of the twelfth and thirteenth segments.

The pupa is cylindrical, slender, the abdomen ending in a flattened blunt projection, beset at right angles with some curled-topped spines.—Id.: *14th July,* 1874.

Description of the larva of Agrotis (*Noctua*) *subrosea.*—On a turf-moss at Kurtenhof, near Riga, where I used to collect along with Herr Teich (the discoverer of the larva of *Cosmopteryx Lienigiella*), *Agrotis subrosea,* Steph., occurs sparingly from the 22nd July to the latter half of August, in company with *Catocala pacta,* L., *Luperina Haworthii,* Curt., *Hydrœcia nictitans,* Bkh., &c.; it is Staudinger's variety *subcærulea* (the *Agr. subrosea,* Herrich-Schäffer, figs. 516, 622).

At the end of May, 1870, I beat three of the larvæ of this species in the evening twilight from *Andromeda polifolia,* L. In captivity they also ate several species of willow (*Salix fragilis,* L., *S. alba,* L., *S. rosmarinifolia).* Not being acquainted with any description of the larva of this species, I here give one from the three larvæ collected by me at Kurtenhof. If the early stages of the typical English species are known, a comparison with this description may help to show whether the variety which occurs in Livonia and Finland should be considered as a distinct species, or remain only a form of the English *A. subrosea.*

Diagn.: grey-brown, with a tinge of violet; three pale violet-grey dorsal lines, and one sub-dorsal line of the same colour; the spiracular line sulphur-coloured; head chestnut-brown; second segment ferruginous; anal segment violet-grey; legs cinnamon-coloured.

The ground colour varies from dark brown to violet-grey, more or less tinged with violet. The dorsal and sub-dorsal lines are pale violet-grey, only very rarely blueish-white, in which case, however, this colour predominates in the narrower central dorsal line. Anterior legs bright cinnamon-coloured, the same as the spiracles; prolegs pale cinnamon-colonred.

Eight days before pupation the larva appears with a broad grey band along the back, which is very distinct from the ground colour, but this vanishes again in two or three days, so that the back then only looks a little paler; the spiracular line assumes a darker shade; the dorsal lines become paler and unconnected; the sub-dorsal lines and generally also the non-central dorsal lines seem to consist of small irregular spots, and assume a darker shade.

Between the dorsal spots on segments four to six, there appears an oblique, dark shade, which is wanting on the other segments, and the first of these is especially conspicuous as a horse-shoe-shaped mark. Here and there the larva appears as though dark shaded or violetish, especially the segments on the back, where the shading from the distance shows itself acutely-angular.

Some four days later, the ground colour is faintly violet, here and there shining through greenish; the violet colour being most distinct at the incisions of the segments. The yellow spiracular line is shaded with dark above and below, the shading most intense above and around the spiracles. The second segment and anal prolegs ferruginous; the head dark chestnut-brown. The fine dorsal lines and the sub-dorsal lines only faintly indicated as though formed of dot-like dusting. On the anterior segments these lines, especially those on the back, still remain very distinct: the central one bluish-white, the lateral lines yellowish. The shade between the dorsal spots on segments three to five is pale brown; horse-shoe mark dark brown; anal segment violet-grey.

Shortly before pupation the larva becomes violet-grey, finely sprinkled with brown; the spiracular line pale yellow, with faint shading, which has become more concentrated round the spiracles. The dorsal spot shading is strongest on segment three, fainter on segment four, and feeblest on segment five. The wedge-shaped marks on the incisions of the segments violetish, most distinct from the fourth and fifth.

The imago escaped from the somewhat compressed pale brown pupa after an interval of twenty-eight to thirty days.—Carl Berg, Museo Publico, Buenos Ayres: *October 9th*, 1873. [Translated from the Stettin. Entomolog. Zeitung, 1874, p. 146.]

Nola albulalis, &c., in North Kent.—On Monday morning last, the 13th inst., I left home for five days' collecting in North Kent, in company with the Rev. T. W. Daltry, of Modeley. A day or two before, Mr. Daltry, who had been there the week previous, had written me he had found out the locality for *Nola albulalis*, and to collect this species was my principal inducement for going. Monday evening we went to the marshes and found *Acidalia emutaria* not uncommon; next morning we found an abundance of *Acidalia rusticata* on two elm hedges; the afternoon and evening we spent in the *albulalis* locality, and took the species very freely; Wednesday and Thursday evenings we had equal success, *albulalis* flying in abundance, indeed, at one time, standing in one spot, I took them as they flew past as fast as I could box *them. Friday evening* we went again, but were astonished to find that not a specimen was to be seen; we could only account for it by the fact that the weather had become colder and the ground damp; but do what we would, neither of us could find a specimen. Next day I returned home. Other *Lepidoptera* were plentiful: *Apatura Iris* was not uncommon about the oaks in one place; and *Pterophorus rhododactylus* occurred about rose. *Albulalis* is easily disturbed from the grass and low underwood in the daytime; and flies freely, for a short time only, just at dusk, very slowly, and not far from the ground. Though small, its pale colour makes it very conspicuous, and the marvel to me is that it has been a rarity for so long.—Geo. T. Porritt, Huddersfield: *July 20th*, 1874.

Entomological Society of London: *1st June*, 1874.—The President in the Chair.

Mons. Achille Guenée, of Chateaudun, was elected an Honorary Member in the place of M. Guérin-Méneville, deceased; and A. Ogier Ward, Esq., of Putney, was elected a Subscriber.

Mr. McLachlan exhibited winged individuals, larvæ, pupæ, and soldiers of the white ant (*Calotermes sp.*) recently bred at Kew from the wood of the copal tree.

Mr. Stainton read a letter from the Rev. P. H. Newnham, of Stonehouse, Devon, stating that he had just taken two examples of *Deiopeia pulchella* on the Cornish side of the river Tamar, and was willing to dispose of them, the proceeds to go to a church-building fund. Mr. Stainton incidentally remarked on the exceptional time of appearance of the insect in this country.

Mr. C. O. Waterhouse sent for exhibition a living (immature, though considerably advanced) example of *Empusa pauperata* brought from Hyère by the Rev. Mr. Sanders. He had tried to feed it with flies, but without success. Mr. Stainton suggested that a live spider should be placed before it; he had found this to succeed with an example brought by himself from the south of France.

Mr. W. D. Gooch, of Natal, communicated a detailed account of his experiences with regard to the Longicorn coffee-borer of that colony, explaining the plans adopted to check the ravages apparently caused by the beetle. Mr. Gooch mentioned that the managers of neighbouring estates informed him that on a north and north-east aspect they found as much as ninety per cent. of the plants attacked by the larvæ, whereas, on cold slopes with a south-west and south-east aspect, the insect was not present, although the mortality in the plants was about the same. Any suggestion as to the destruction of insectivorous birds was useless in this case, because no birds were destroyed. Dr. Horn (of Philadelphia) stated that European conifers, limes, &c., planted in a public park in Philadelphia, were all killed by the larvæ of native species, though apparently in a healthy condition, and native trees were not perceptibly affected. Mr. McLachlan reiterated that, according to the observations of European entomologists, the majority of the European species do not attack living healthy wood.

Mr. Butler communicated a paper on new species and a new genus of Diurnal *Lepidoptera* in the collection of Mr. Druce.

Mr. Smith read a revision of the Hymenopterous genera *Cleptes*, *Parnopes*, *Pyria*, *Anthracias*, and *Stilbium*, combining also new exotic species of *Chrysis*. The genus *Anthracias* formed a subject of special interest, because no one had, apparently, recognised it since Klug published his brief generic characters; but Mr. Smith had found an example among a series of *Parnopes* carnea that formerly belonged to Mr. Shuckard.

Review.

THE BUTTERFLIES OF NORTH AMERICA, with coloured drawings and descriptions; by W. H. EDWARDS. Second series, part i. New York, Hurd and Houghton; London, Trübner and Co. *May*, 1874.

Mr. Edwards has commenced a second series of his magnificent work, and the first part of it fully maintains, both in plates and descriptive matter, the almost unrivalled excellence of the first series. It is devoted to species of *Papilio*, *Anthocaris*, *Argynnis*, *Libythea*, and *Chionobas*, and in several there are copious illustrations of all the stages from the egg upward. Apart from the beauty of the plates (which could scarcely be surpassed for fidelity), the letter-press must commend itself to the scientific entomologist from the careful way in which the descriptions are made, and from the very copious and interesting geographical notes.

Obituary.

R. G. Keeley. Mr. Keeley died of consumption at Southampton on the 28th June, aged 38. He was known to many entomologists as a quiet and unassuming collector of British *Coleoptera*, of which he had a good general knowledge. We believe he was originally in the service of a well-known firm of natural history lithographers, which possibly brought out his taste for entomological pursuits, and for many years past he was an employé of a large East Indian Agency, and being transferred to the Southampton branch, he took up his residence in that town. He seldom published notes, but his name appears occasionally in the various entomological periodicals, probably for the first time in the 'Intelligencer' for 1858. He leaves a widow and three children.

George Robert Crotch, M.A. It is our painful duty to announce the loss of one of the most widely-known of British, or even of European entomologists. George Robert Crotch, M.A., died at Philadelphia, U. S., on the 16th June last. When quite a youth, Crotch already displayed a love for entomology; this manifested itself at first, as is so often the case, by his commencing the formation of a collection of *Lepidoptera;* in this he was very successful, and, while an undergraduate at Cambridge, he captured in the fens of the district many rare and little-known species of this order. At the same time he was also occupied in the formation of a collection of British *Coleoptera*, and, during the years 1860-63, discovered numerous species of this order not then known to inhabit the British Islands, and recorded their occurrence in the pages of the Zoologist.

In the year 1863 he obtained his degree of M.A. at Cambridge, by graduating in the Natural Science Tripos.

By this time the order *Coleoptera* had entirely engrossed Crotch's entomological attention, and in the same year (1863) he published a Catalogue of British *Coleoptera.* This Catalogue contained the names of a great many species not before recorded as British, and, as it differed much both in arrangement and nomenclature from the Catalogues of British *Coleoptera* that had preceded it in this country, it attracted much attention, and was much discussed by entomologists. Whatever may be thought of some of the changes adopted in this work (and many of them are, and *probably will be for long, points* under discussion), it was undobtedly a valuable contribution to our knowledge of the British insect fauna, and had an important effect in stimulating his fellow-labourers to further researches, and it obtained for its author a prominent place among the entomologists of this country.

Crotch was always a most enthusiastic and skilful collector of insects, and in the year 1864, visited the Canary Islands in company with his brother, Mr. W. D. Crotch, for the purpose of collecting the *Coleoptera* of the Islands. So successful were these two collectors, that, notwithstanding the fact that T. V. Wollaston, J. Gray, as well as W. D. Crotch himself, and others, had previously collected *Coleoptera* assiduously in these islands, they added no less than seventy-seven species to the Canarian fauna.

On his return to England, Crotch accepted an appointment in the University library at Cambridge, and devoted his leisure time to the study of the species of British *Coleoptera*, and commenced a laborious investigation of the ancient literature of entomology, with a view to establishing a correct nomenclature for our species. At an early period of these researches he had become dissatisfied with his published Catalogue of British *Coleoptera*, and for this reason, produced in 1866 a second edition, in which some of the undoubted errors and omissions of the first edition were remedied, and which was intended to serve as a temporary stop-gap till he should be able to complete a more elaborate and perfect edition.

In 1865 he visited Spain, in company with several other members of the Entomological Society of France; and in 1870 he repeated his visit to that productive country in company with an English friend, and on both occasions brought back with him collections of *Coleoptera*, remarkable, not only for their extent, but for the number of rare and new species they contained.

In the year 1867 Crotch published, in the Proceedings of the Zoological Society of London, a complete enumeration of the *Coleoptera* of the Azores, accompanied by descriptions of new species found there by Messrs. Godman and Brewer.

Although his collections had by this time become very considerable and required much of his time, Crotch pursued with untiring industry his studies of the literature of entomology, and published, besides a large number of corrections of the Catalogue of *Coleoptera* of Gemminger and Von Harold, a list of all the *Coleoptera* of the group *Adephaga*, described from the year 1758—1821, referring them to their modern genera; this he did with the hope of assisting others who, like himself, were engaged in attempting to cleanse the Augean stable of entomological nomenclature. This work was published at Cambridge in 1871, and by this time he was recognized by the best judges to be the man who had a more detailed acquaintance with the ancient literature of entomology than any other living student. This paper had, indeed, been preceded by one published in the Transactions of the Entomological Society of London, entitled "the genera of *Coleoptera* studied chronologically (1735—1801)," which was, and probably will long continue to be, of great use by pointing out to Zoologists the great difficulties that encumber any attempt to deal in a systematic manner with entomological nomenclature. In 1871 he also published a synopsis containing abbreviated descriptions of all the new species of *Coleoptera* belonging to the European and Mediterranean faunas that had been described during the year 1868; this little production cost a vast amount of investigation; and it is much to be regretted that it has not been continued by some other student, as Crotch had hoped it would be. By this time, Crotch, whose enthusiasm for the study of entomology seemed to take always wider and wider limits, had engaged himself in the investigation of the *Coccinellidæ* and *Erotylidæ* of the entire world; he speedily amassed very important collections in these groups, and published in 1871 a list of the *Coccinellidæ* of the world, and also prepared for publication a revision of the family *Coccinellidæ*, which, though not yet published, will, it is expected, be shortly issued from the Cambridge University press.

At this time he was acting as sub-editor of the Zoological Record. In the autumn of 1872, he left Europe with the intention of making an entomological journey round the world, and passed to the United States, where he spent the winter of 1872–3 in studying the *Coleoptera* of North America. So energetically did he carry on these studies that he was able to publish a catalogue called a "Check list of the *Coleoptera* of America, north of Mexico;" as well as various extensive memoirs on important groups of the North American Coleopterous fauna, viz.: "Materials for the study of the *Phytophaga* of the United States," "Notes on the species of *Buprestidæ* found in the United States;" both of which have been published in the proceedings of the Academy of Natural Sciences of Philadelphia: also "Synopsis of the *Erotylidæ* of boreal America," "Synopsis of the *Endomychidæ* of the United States," "Revision of the *Coccinellidæ* of the United States," and "Revision of the *Dytiscidæ* of the United States," all of which were published in the Transactions of the American Entomological Society. During the same winter he also read a paper before the American Philosophical Society, "On the arrangement of the families of *Coleoptera*." In the production of these papers, he no doubt received much assistance from the great American coleopterists, Messrs. Leconte and Horn; but, making all due allowance for this, these works exhibit an amount of activity almost without parallel, we should think, in the annals of entomological literature. In the spring of 1873, he went to California, and passed the summer in making an entomological exploration of that country, Oregon, and the Fraser River district. In this task he was most successful, for he not only brought back with him a vast amount of material, but it is estimated that this contained no less than three hundred species new to science. Returning to the Atlantic coast in the autumn of last year, he commenced work at the Cambridge Museum of Comparative Zoology, where he had accepted an appointment offered him by Agassiz. But, after the death of Agassiz, his connection with the Museum soon terminated; as by this time the pulmonary complaint which had attacked him during his first winter in the United States, declared itself in an unmistakeable manner, and made such rapid progress, that he died at Philadelphia on the 16th of June last.

Crotch was a man of genial and courageous disposition, and to such of us as have lost in him a friend as well as the entomologist, the loss is indeed a grievous one. His powers of work were enormous, and there can be no doubt that he often (we might say habitually) overtaxed himself; he really appeared to have no thought of taking care of himself, and it is no doubt to these things, in conjunction with the trying climate of the United States during the winter, that the development of the illness which has deprived us of him is to be attributed. He was, we believe, only 33 years of age, and was cut off at the moment when his faculties might have been expected to have taken a still higher development; had his judgment matured and become equal to his other powers, he would have ranked amongst the very first of the entomologists of the world. As he was, "take him for all in all, we shall not look upon his like again."

DESCRIPTION OF THE LARVA AND PUPA OF *DEILEPHILA EUPHORBIÆ.*

BY WILLIAM BUCKLER.

In 1859, I figured this species from a larva sent me by a correspondent in Jersey, but, none the less, I was desirous to see a living example again, for in the interval I knew my eyes had been educated continually to see more and more in my subjects, and I felt I might then have passed over something in such a difficult task, which I could now detect at once.

My surprise, therefore, was more than equalled by my delight when on the 7th of August, 1872, there came to me four larvæ, which a few days before had been found feeding on *Euphorbia cyparissias* in the Forest of Fontainebleau by Mr. Evan John, whose kindness in taking the pains to bring them to England as a contribution to my work I remember most gratefully.

On their journey to me, they had stripped to the bare stems the food put in with them, and appeared restless and hungry; my first precaution was to separate them, and supply them with some *Euphorbia peplus* gathered from the garden, and on this substituted food three of them began to satisfy their cravings; the largest, however, refused to touch it, and, as it appeared to be full fed, I set to work at once to secure its portrait; an operation which, from the complicated nature of its details, and the irritability and restlessness of the subject, was not completed till the afternoon of the next day, when I placed the larva in a pot with sand and food, and in a few hours it spun itself up on the sand under some spurge and moss.

Meanwhile, a friend had kindly undertaken for me an expedition to the coast, bringing back a good supply of plants as well as gathered branches of *Euphorbia paralias* and *portlandica;* the plants I potted, and the branches I gave to the feeding larvæ, and it was a pleasure to witness their enjoyment of this more congenial fare. The *Euphorbia peplus* they had been eating had evidently been regarded as a mere whet—and their appetite now seemed insatiable; each larva embraced the sea-spurge with all its legs, and ate voraciously, and at length, when compelled to stop, it would go to sleep without change of position, and with a partly devoured leaf in its jaws; and then, after a few minutes' repose, it would wake up, finish the leaf, and attack whatever came next—leaves or seed vessels—most vigorously; there was no walking about, the only movement was a step or two backward as the stem *shortened* beneath its jaws.

From this time their behaviour was most satisfactory. Luckily they were all of different ages, though all in their last moult, and I was able, without anxiety for the others, to devote my whole energies to one at a time; and so in turn they all sat to me—or rather I may say ate before me—during eight days while I was closely at work, and never sulked or shrank when the sun shone on them, or when for closer inspection I took them in my hand: only as each matured, and ceased feeding, it grew active and lively, and exhibited its capacity of walking at a great pace for a day or two before settling down to its change.

The smallest of the four had, apparently, just undergone its last moult when it reached me, and it was then just one and a quarter inch long; the dates for their making up were respectively August 8th, 14th, 17th, and 18th. The earliest pupa was figured on the 21st of October, when, on searching for the others, the latest larva was found to have died without turning, although it had made a perfect cocoon.

Emboldened by a former success in forcing several *galii* to perfection in 1870—71, I resolved to hazard the three pupæ of *euphorbiæ* in a similar experiment. On the evening of the day in which I had disturbed them, I packed them in the forcing box with moss, and placed them at first on the iron plate of a kitchen stove over the boiler; here the situation was warm through the greater part of the night, and quite hot by day, when the bottom of the box was elevated two inches above the hot plate by aid of two strips of wood on which the box rested; here they were damped with lukewarm water twice a day; on the 23rd November, a fine and perfect moth came from the earliest pupa, but after that my efforts were baffled; the two remaining pupæ continued lively, but the moths would not appear; I moved the box to a place before my sitting room fire, but without effect; and at last I came to the conclusion that *I ought not to have begun the forcing till the weather had become dry and frosty;* then the heat would have had due effect, but as it was, the great humidity of the atmosphere had prevented this, and sufficient heat had not reached the pupæ to develop the imago in them at once.

After continuing my forcing till the end of December, I put the pupæ aside to wait for summer, but before that time came they had died.

Of course I can say nothing of the larva when young, but I may notice the appearance of the two smaller ones when they first came to me. The ground colour of the smallest was black; the next in size was blackish-green, and with a multitude of small bright yellow dots, contrasted with larger spots of yellow tinged centrally with a rosy hue: for the rest I shall describe one full-grown larva, and mention the variations of detail in the others, as each preserved its individual points of difference to the last.

The full-grown larva measured from three to three and a quarter inches in length, being in proportion a trifle more slender than *galii*, though otherwise similar in form, being plump and cylindrical, tapering considerably from the fourth segment to the head, which is the smallest segment, and is rounded in outline; tapering a little also at the two hinder segments, the twelfth having a rough, blunt-tipped horn curving a little backwards; each segment from the fifth to the twelfth is subdivided into seven rings by well-defined wrinkles, the front ring equal in width to three or four of the others; the skin generally smooth and shining; the anal pair of legs larger than each ventral pair, and of a squarish form; the segments appear more plump and swelling on the ventral than on the dorsal surface. As to colour, two individuals were of the same type, the ground colour of the skin only varying in intensity from a bronze-green to a deeper blackish-bronze; the head blood-red, the mouth and base of papillæ pale yellow, the former margined above and below, and the latter surrounded, with black; the dorsal stripe blood-red in colour, widened on the second segment in a curve on either side downwards, suggestive of a plate, but from thence continued of about uniform width to the anal flap, which is also red; the horn is of the same colour, but with black tip, and glistening; in these larvæ the sub-dorsal region bore a row of very blunt wedge-shaped red marks, widest at the hinder part, and pointing forwards, and a row of large roundish or dumpy pear-shaped bright ochreous-yellow spots slightly tinged above with pink (on the twelfth segment of a longer pear-shape, with the stem pointing to the horn), and below these another such row only paler, and irregular in shape from a fold in the skin, these spots on each front broad ring being much surrounded with black; below these come a few small dots of white, and then in its place—rather behind again—the whitish oval spiracle; the hinder narrow rings of each segment—whether in the red wedges or on the ground colour—bore transverse rows of thickly set yellow dots: the puffed region below the spiracles showed red interruptedly, but without any dots; beneath this again, a patch of the dark ground colour, sprinkled with white dots; the tips of the ventral and anal legs blood-red; the anterior legs orange-ochreous tipped with black.

The variety which may be termed the *red*, from the great quantity it possessed of this colour, had the first or broad ring of each segment of a black ground colour, and the narrow rings of a bronzy-green, the wedge shapes of red in the sub-dorsal region extended along each segment from their greatest breadth at the last ring to the blunt apex close to the broad front ring; the dots of yellow above and whitish below, and the double series of large spots were as described above; all the rings suddenly interrupted by the inflated and rather tortuous broad sub-spiracular region coloured red; below this on each segment came a pear-shaped patch of bronzy-green dotted with white, all the rest of the belly and legs were red, but inclining at the segmental divisions to deep ochreous or greenish-ochreous, as the above-mentioned red wedge marks did in the same place; a few yellow dots were at the segmental divisions in the sub-spiracular region; the black plate on the second segment margined with red; the red head and dorsal stripe, &c., as in the other varieties.

The black variety had no sub-dorsal wedge marks; the first ring in each segment with black ground, the others with greenish-black ground, dotted and spotted with bright sulphur-yellow above, and white below; very little of the sub-spiracular region was inflated, and was coloured crimson-red and ochreous, the red in the middle blending gently with the ochreous at each segmental division; the anterior edge of the second segment yellow, a large round black spot on the top of each lobe of the crimson head, the anterior half of the anal legs black, the rest crimson, the same coloured dorsal stripe quite narrow, and the anal flap black margined with crimson.

I must not now omit to mention a handsome variety of this larva, brought home in spirits from Cairo by Mr. Jenner Fust, which I thankfully received in May, 1871, through my friend Mr. Hellins, and figured; this had the broad ring on each segment black, the ground colour on the others of the deepest blackish-olive; the head, the plate on the second segment, the dorsal stripe, the legs, anal flap and caudal horn blood-red; the double series of large spots creamy-whitish; the upper rows of small dots pale yellow, the lower rows white; the sub-dorsal truncated-wedge shapes of deep ochreous, and largely developed; the inflated sub-spiracular region, belly, and ventral legs, of deep ochreous or buff colour; a pear-shaped blotch of dark olive dotted with white situated below the sub-spiracular region on each segment; the ventral legs tipped with red, anterior legs red.

The cocoons were of a very firm texture, spun with strong and coarse silk threads attached to some leaves of spurge above, and with some sand interwoven, and in each instance firmly fastened to the side of the pot, and sunk about half-an-inch below the surface of the sand, so that *it* was immoveable, though the sand was loose; the interior of the cocoons beautifully smooth, with fine silken lining.

The pupa one and five-eighths of an inch in length, and half-an-inch in diameter, tapering a little from the thorax towards the frontal extremity, where it is rather smooth; the wing cases pressed close to the body; the abdominal rings in tolerable relief; the outline tapers a little near the anal tip, which ends in a broad, flattish, downward-curved spike pointed at its extremity, the remains, apparently, of the caudal horn of the larva.

The colour a dingy, deep brick-red above, fading a little beneath to more of a flesh colour, and thickly covered with minute blackish punctures; the wing-covers dark brownish much freckled and finely streaked with blackish, as are also the head, antennæ, eye, and leg- and trunk-cases; the segmental divisions of the abdomen dull purplish-red, and quite smooth, while the parts between them are roughened by black pits or punctures on a rather shining ground; a dorsal line of the ground colour is visible on the back of the thorax; the spiracles black.

Emsworth: *May* 13*th*, 1874.

DESCRIPTIONS OF TWO NEW SPECIES OF HETEROCEROUS *LEPIDOPTERA* IN THE COLLECTION OF THE BRITISH MUSEUM.

BY A. G. BUTLER, F.L.S.

EUCYANE EGAENSIS, *n. sp.*

Wings above black-brown, basal area and body bright metallic blue-green; primaries with a broad, oblique, transverse, carmine band, clouded with pale rosy scales; apex narrowly white; secondaries with costa grey; a broad, irregular, oblique, sub-apical, carmine fasciole; fringe varied by three white spots; wings below as above; body with legs and palpi brown above, white below. Abdomen with broad, ventral, carmine band; segments white-edged. Expanse of wings, 2″ 2‴.

Ega (Bates). Two specimens. B. M.

Allied to *E. temperata*, Wlk., from Tapajos, but with broader carmine band in primaries, not varied with white; and a broader expanse of metallic-green at the base of the wings.

CALLIODES RUBROPICTA, *n. sp.*

Allied to *C. orbigera* of Guenée, but considerably larger; the costa darker, the discal macular white band obsolete; the postmedian oblique transverse band continued to apex of primaries, the ocellus much larger, the yellow iris not confined by the black line, excepting towards costa; the central oblique black streak and the black border of the postmedian white band strongly waved; the broad dark brown discal band boldly arched so as to form two semicircular patches across each wing, edged externally and irrorated internally with dead gold; submarginal line widened, irregular, but not zigzag; a patch of rosy hair-scales on abdominal margin; fringe of secondaries sordid except at apex. Abdomen above rosy, with sub-triangular basal brown patch and lateral segmental blackish spots; wings below smoky-brown; a large, rounded, discocellular spot on each wing, bounded externally by a white nebulous patch, interrupted (indistinctly on primaries, but distinctly on secondaries) by the brown nervures, and an angulated transverse band; two waved discal bars; fringe cream-colour; edge of outer margin undulated; primaries with a broad, interno-basal, rosy-flushed, cream-coloured patch; secondaries with a broad, pyriform, rosy patch on the abdominal margin; body below grey-brown. Expanse 2″ 11‴.

Moreton Bay (Strange). B. M.

We have one example of this species in the collection, but Mr. Walker informs me that there is a second in that of Mr. Chapman, of Glasgow: Mr. Walker originally described it briefly as the female of *C. orbigera*, but after seeing this second example, he was satisfied that it was a different species. I have not the slightest doubt that the two insects are abundantly distinct.

British Museum: *June*, 1874.

DESCRIPTIONS OF THREE NEW SPECIES OF *EROTYLIDÆ*.

BY GEORGE LEWIS.

1. Cyrtotriplax Niponensis. *Ovata, nigra, nitida. Capite thoraceque parce punctatis, elytris punctato-striatis, interstitiis evidenter sed parce punctatis. Scutello sublævi. Subtus vix punctata. Palpis nigro-piceis, coxis anterioribus rufo-piceis.* *Long. corp.* 2¼ *lin.*

This insect is readily distinguished from its congeners by its narrower form, wholly black and shining colour, and longer and more slender legs.

Hab.: Hiogo, Japan. A single specimen from a fungus near Maiyasan Temple; October, 1871.

2. C. consobrina. *C. bipustulatæ proxime affinis, at paulo latior, antennis pedibusque nigris, robustioribus, capite thoraceque paulo profundius punctatis; elytrorum maculâ sanguineâ latiori a basi necnon suturâ late separatâ, marginem externam solùm attingenti.*

Long. corp. 2—2¼ *lin.*

This species is broader in the head and thorax than the Fabrician type, and the elytra are not so narrowed before the apex. The antennæ and legs are stouter, and the red band leaves a broad black margin both at the suture and at the base of the elytra, and touches the margin only at the outer edge.

Hab.: Irkutsk, South Siberia, and is apparently not rare.

3. EPISCAPHA TAISHOENSIS. *Oblonga, nigra, haud pubescens, sparse sub-fortiter punctata. Thorace sub-transverso vix torte marginato, basi sinuato. Elytrorum macula anterior maculæ anteriori E. Fortunei vix simili, at posterior paulo minus undulata. Scutello in medio punctis raris impresso. Antennis pedibusque robustioribus, totis nigris.*

Long. corp. 8 *lin.*; *lat.* 3 *lin.*

This species is half as broad again as *E. Fortunei*, Crotch, with proportionally thicker legs and antennæ; and, while the red bands of the elytra closely accord in general outline, the pattern is less crenulate and defined.

Hab.: Chiosan and Tsu-sima; islands in the Straits of Korea.

Norbiton: *July*, 1874.

DESCRIPTIONS OF TWO NEW GENERA AND SOME NEW SPECIES OF *PSELAPHIDÆ*.

BY D. SHARP, M.B.

TETRACIS, *nov. gen.*

Antennæ 11-articulatæ, elongatæ, apicem versus leviter incrassatæ, basi approximatæ. Palpi maxillares sat elongati, articulo 2° medio abrupte curvato, parte apicali incrassata extus obtuse angulata, seta brevi instructa; articulo 3° latitudine paulo longiore, extus apicem versus obtuse angulato, angulo seta brevi instructo; articulo 4° precedente paulo longiore, apice extus oblique truncato intus peracuminato, extus medio seta brevissima instructo. Caput ante oculos deflexum, sub oculos tuberculo parvo instructum, pone oculos acute prominens, tuberculis frontalibus brevibus, connatis. Abdomen sat elongatum, marginatum, segmentis dorsalibus quinque perspicuis, quorum duo basalia sat elongata, tria ultima paulo breviora deflexa; segmentis ventralibus 5 perspicuis, tribus ultimis perbrevibus. Pedes elongati, trochanteribus intermediis elongatis, coxis posticis distantibus, a femoribus trochanteribus separatis; unguiculis duobus parvis.

This genus must be placed between *Tmesiphorus* and *Ctenistes*. The structure of the maxillary palpi scarcely differs from that of *Tmesiphorus carinatus*, but the connate frontal tubercles distinguish it from *Tmesiphorus*. From *Ctenistes* the structure of the maxillary palpi will readily separate it. It appears also to be allied to *Centrotoma*, but the angulated joints of the maxillary palpi separate it therefrom.

TETRACIS COMPLEX, *n. sp.*

Rufescens, nitidus, prothorace subtransverso; elytris stria suturali, striaque discoidali integra, basi profunde impressis foveo latisque; abdomine segmentis 1 *et* 2 *supra et infra basi dense glanduloso pubescentibus.*

Long. corp. ultra 2 *mm.*

Antennæ much longer than head and thorax, rather stout, the basal joint nearly as long as the two following joints together, a little stouter than the second joint; second joint distinctly longer than the third, but scarcely thicker than it; joints four to eight not differing from one another; joints nine and ten elongate, a little stouter than the preceding joints, each longer than broad; eleventh joint elongate, distinctly stouter than the tenth joint, and as long as the ninth and tenth together. Head, with the vertex elevated but short, with the impressions very obsolete. Thorax narrower than the elytra, but distinctly broader than the head and eyes, not so long as broad, at the base in the middle, with a dense patch of glandular pubescence, and at the hind angles with similar pubescence extending downwards as far as the coxæ. Elytra longer than the thorax, a little narrowed at the shoulders.

The specimen described is, no doubt, a male: it has the metasternum longitudinally sulcate. The antennæ of the female may very probably differ from the above description.

A single specimen of this highly interesting species was sent me from Tangiers, by M. Olces, as being the *Ctenistes integricollis* of Fairmaire. Fairmaire has, however, figured both the *C. integricollis* and its magnified palpus, and these figures leave no doubt that it is a very different insect from the one here described.

PSELAPHUS SAULCYI, *n. sp.*

Castaneus, minus nitidus; palpis maxillaribus articulo ultimo valde elongato, parte apicali abrupte dilatata, breviter ovali; antennis articulo nono precedente (in femina?) latiore sed haud duplo longiore; prothorace elongato haud impresso; elytris thorace paulo longioribus disco carinatis; mesosterni medisterno valde elongato medio haud longitudinaliter carinato.

Long. corp. vix 2 *mm.*

Dark reddish-chestnut, with the head and thorax narrow, and the after-body very broad; on the upper-side the head, thorax, and elytra are sub-opaque, the hind body shining; the maxillary palpi are very elongate, the dilated apical portion of their terminal joint is only about one-fourth of the length of the extremely slender basal portion; the ninth joint of the antennæ is not much longer than broad.

This highly interesting insect is apparently most nearly allied to the *P. Diecki*, Saulcy, and its general form resembles greatly the figure of that species as given on plate ii, f. 6 of Von Heyden's Reise; the after-body of *P. Saulcyi* is, however, notably broader than the figure represents that of *Diecki*. The single individual I have seen of this species has the anterior trochanters very prominent, and acutely angulated, and is particularly remarkable by the structure of its metasternum, the central portion of which is prominent and flattened, and forms as it were two oval plates which appear to be covered with a peculiar glandular matter. The basal segment of the hind body is not in the least impressed in the middle, and this has raised some little doubts in my mind as to the sex of this individual; I feel, however, pretty certain that it is a male.

I captured my single specimen of this, which is, perhaps, the most remarkable species of the genus, at Reynosa, in the north of Spain, and I have named it with much pleasure in honour of M. de Saulcy, who has described also some highly remarkable forms of this genus from the same country.

BYTHINUS ŒDIPUS, *n. sp.*

Rufescens; vertice lævigato; elytris parce fortiter punctatis; prothorace lato, basin versus valde angustato. *Long.* 1⅗ *mm.*

Mas: antennarum articulo primo cylindrico leviter incrassato, secundo sub-quadrato, precedente fere latiore, angulis internis subrectis (i. e., anteriore subobtuso, posteriore acuto), margine interno quam externo haud breviore, acuminato: femoribus omnibus valde inflatis; tibiis anticis ante apicem subito attenuatis, posterioribus incrassatis intus medio dente magno, apice interno acuto.

Patria, Hispania (Reynosa).

This species is highly remarkable by the structure of its legs, and in this respect the Portuguese *B. lusitanicus*, Saulcy, appears to be allied to it; but, if I correctly interpret de Saulcy's description, the second joint of the antenna is differently shaped in that species. The species should be placed near *B. clavicornis* and *B. crassicornis*.

BYTHINUS CROTCHI, *n. sp.*

Rufescens; vertice lævigato; prothorace magno, basin versus valde angustato; elytris parce minus distincte punctatis; oculis (maris) parvis. *Long. corp.* 1⅗ *mm.*

Mas: antennarum articulis duobus basalibus simplicibus, primo elongato; femoribus omnibus incrassatis; tibiis anterioribus ante apicem subito angustatis; posterioribus gracilibus elongatis.

Patria, Hispania (Reynosa).

A single specimen of this species was given to me by my lamented friend G. R. Crotch, who captured it at Reynosa; and I subsequently myself found a single individual in the same locality.

BYTHINUS MANUELI, *n. sp.*

Rufescens, postice plus minusve nigricans; prothorace antice impunctato; elytris obsolete punctatis. *Long. corp.* 1⅓ *mm.*

Mas: antennarum articulo primo incrassato, intus apice tuberculo minimo; 2º magno, primo latiore, latitudine vix breviore, margine interno convexo quam externo paulo longiore; tibiis anterioribus intus ante apicem minus fortiter angustatis, pedibus posterioribus gracilibus.

B. nodicorni peraffinis; maris antennarum articulo 2º longiore, margine interno elongato haud acuminato, facile distinguendus.

Patria, Sabaudia.

This *Bythinus* was captured during the month of May last at Albertville, Savoy, by Count de Manuel and myself, and I have great pleasure in naming it in honour of my hospitable and genial friend.

BATRISUS SIBIRICUS, *n. sp.*

Magnitudo et statura B. formicarii. Rufus, elytris exceptis, subopacus; antennæ crassiusculæ apice leviter clavatæ; capite punctato, vertice sat elevato, subtilissime carinato; elytris parce, fortiter sed parum profunde punctatis; abdomine pubescentia depressa subtili sat dense vestito. *Long. corp.* 3 *mm.*

Mas: antennarum articulo ultimo intus medio tuberculo obsoleto; femoribus intermediis arcuatis; tibiis omnibus basi compressis, intermediis apice unco brevi sat valido armatis.

Fem. incog.

Antennæ long and stout, joints 2—8 bead-like. Head much elevated over the insertion of the antennæ, the vertex rather strongly elevated, and with an extremely fine line along its middle, eyes in front moderately large, but truncate behind, and with the head projecting behind them as a fine acuminate tubercle; when viewed from the front the appearance is exactly as if the eyes themselves were spined or angulated. Thorax similar to that of *B. formicarius*, but with the middle fovea indistinct, and the front parts more distinctly punctured. Elytra redder and more shining than the rest of the surface, sparingly but distinctly (though not deeply) punctured. First dorsal segment of the hind body very finely margined at the sides, without impressions at its base, but with two very short indistinct raised lines in the middle behind the elytra, and outside these with a longer, very fine, oblique line on each side.

I have seen but a single specimen of this fine species; it comes from Eastern Siberia. Though clearly allied to *B. formicarius*, it is very distinct therefrom. In connection with this insect it may be worth while to mention, that the figure of *B. formicarius* given by Aubé (Psel. Mon., pl. ix, f. 1) is extremely deceptive; the antennæ are those of a male individual, while the legs are not those of *B. formicarius*, either ♂ or ♀, and are indeed so different, that they must have been entirely supplied by the imagination of the artist, who, however, was Aubé himself.

TROGASTER, *nov. gen.*

Corpus elongatum, sub-depressum. Antennæ basi valde distantes. Caput sub-triangulare, nullo modo rostratum. Palpi maxillares breves. Thorax cordatus. Coxis anterioribus elongatis longe exsertis. Prosternum magnum. Abdomen marginatum, segmentis 5 dorsalibus perspicuis sed quinto parvo transverso, fere condito, segmentis 4 primis sub-æqualibus; segmentis ventralibus sex perspicuis. Pedes trochanteribus brevibus, coxis posticis prominentibus, basi contiguis; tarsi unguiculo instructi.

This genus is allied to *Euplectus*, but differs therefrom by the peculiarly prominent anterior coxæ: its facies is rather that of *Trichonyx*. I have only been able to make a very imperfect examination of the single individual I possess, but I have no doubt a complete knowledge of its characters will prove it to be a very distinct genus. Indeed, it possesses slender much exserted anterior coxæ in common with the North American *Rhexius insculptus*, and the Australian *Batrisus hamatus*, King (not a member of the genus *Batrisus*); and I believe its true position will be found to be in the neighbourhood of those insects.

TROGASTER ABERRANS, *n. sp.*

Castaneus; oculis minutis; prothorace lateribus medio angulatis, disco longitudinaliter canaliculato; elytris prothorace paulo longioribus, stria suturali integra. *Long. corp.* 2 *mm.*

Mas: abdomine segmentis ventralibus 3 *et* 4 *medio depressis; segmento* 5° *profunde emarginato, medio brevissimo;* 6° *magno, fovea maxima, circulari, nitida insigne.*

Antennæ shorter than head and thorax, 1st and 2nd joints longer and stouter than the following, the 1st about twice as long as the 2nd, joints 3—8 small and very short, scarcely differing from one another, 9th broader and longer than the 8th, sub-quadrate, 10th joint shorter but broader than 9th, strongly transverse, 11th joint large, stouter than the 10th, and longer than 9th and 10th together. Head short and broad, the elevation on each side over the antenna abruptly defined inwardly, so as to form a kind of deep impression or fovea, the vertex in the middle with an indistinct fovea; the eyes are very small, and placed in the middle of the sides at a distance from the hind angles. The thorax is elongate, longer than broad, though only a little narrower than the elytra, the sides are much narrowed towards the front (so that the front part of the thorax forms a sort of short neck), and they project in the middle in the form of a prominent acute tubercle, behind which the thorax is abruptly narrowed; along the middle is a deep channel, and at each side behind the lateral angle is a large deep impression. The elytra are but little longer than the thorax, a little narrowed at the shoulders; each has a deeply impressed sutural stria, and the humeral angle is prominent, and within this the surface is depressed, and the inner margin of the depression extends towards the extremity as a kind of plica. The first segment of the hind body is in the middle close behind the extremity of the elytra transversely impressed, and the impression is filled with fine hairs. The legs are moderately long, the tarsi rather more than half the length of the tibiæ.

A single example of this very curious Pselaphid was sent me by that most successful collector the late E. Raymond, from Corsica, under the name of *Trichonyx aberrans;* the species, however, does not appear (though this was five or six years ago) to have yet found a describer.

Eccles, Thornhill, Dumfries:
August 8*th*, 1874.

Note on a curious race of Harpalus latus, L.—I am indebted to Mr. George Lewis for a ♀ example of a most interesting variety (or race) of the above-mentioned common insect, apparently hitherto unnoticed, and which is so conspicuously different from the type, that I propose to give it a name *(metallescens)*, especially as some five or six of it were taken, all (as I am informed) exactly alike. These specimens were found during the past summer by a relative of Mr. Lewis's, at Folkestone. The individual in my possession is hard and mature: its legs are of a brighter yellow than usual; the whole upper surface is of a silky greenish tone, the thorax being especially *green* at the hinder angles; the thorax itself seems scarcely so transverse as usual, being appreciably contracted behind, and having its posterior angles not nearly so rounded off as in ordinary examples; the punctuation at its base is almost obsolete and confined to the foveæ, and the foveæ themselves are much less conspicuous. —E. C. Rye, Parkfield, Putney: *August*, 1874.

Note on a variety of Liodes humeralis.—I am also indebted to Mr. Lewis for a specimen of the var. *globosa*, Payk., of this common species, not hitherto recorded as British, though the other described var. (entirely rufo-castaneous, with lighter indications of the usual shoulder spot), *clavipes*, Hbst., is, according to Erichson, represented by *Leiodes armata*, Steph. (which, *teste* Wat. Cat., is ? *Anisotoma rugosa*, in Steph. Coll.). In the var. *globosa*, the disc of the thorax is more or less black, and the humeral spots are so confluent as to invade the whole elytra except the apex, which is dark; there is also a trace of dark colour along the suture. The insect is quite hard and mature, but the "var." *clavipes* seems probably nothing but an immature individual.—Id.

Coccinella eating Lepidopterous ova.—A male *Coccinella bipunctata* has been engaged, during the last four days, in eating a batch of about sixty eggs of a Lepidopteron, laid on the glass of an out-house window here: it finished the last of them a little before dusk yesterday afternoon.—J. E. Fletcher, Pitmaston Road, Worcester: *August 4th*, 1874.

Re-occurrence of Halonota grandævana at Hartlepool.—On the 26th June I took a specimen of this *Tortrix*, and on the 6th of July I met with another, but I was by no means certain I had found the head quarters of the insect. This proved to be the case, for, on trying a fresh locality, a short distance from where I had taken the two first specimens, I had the good fortune, on the 15th July, to meet with ten specimens, and the following night, aided by a friend, I captured forty-seven! Many, however, were somewhat worn, and I could only regret I had not found out these head quarters a fortnight earlier. I took two or three splendidly marked females, which seem to be generally larger than the males.

I am not at all surprised that the insect has so seldom been taken, for it does not fly before dusk, and then only a sort of jerking flight of a few yards *very close to the ground*. Afterwards, I discovered that I could take them more easily by looking over the leaves of the coltsfoot with a lantern, and by this means I got some very fine specimens sitting on the *top* of the leaves, generally on the smallest and most stunted plants, the more luxuriant plants being seldom patronized.—J. Gardner, 8, Friar Terrace, Hartlepool: *July* 17*th*, 1874.

Elachista serricornis, &c., at Witherslack.—I spent the 25th and 26th July at Witherslack, and, though the weather was too hot for day work, by sweeping before the sun got too hot I obtained two *Elachista serricornis* on the 25th, and two more on the evening of the 26th. *Rhynchosporella* was plentiful, but I only saw these four specimens of *serricornis*. Amongst my other captures I may mention *Hypenodes turfosalis*, *Cnephasia lepidana* and *icterana*, *Gelechia ericinella*, in plenty; single specimens of *Coleophora pyrrhulipennella* and *apicella*, *Catoptria expallidana*, *Eupœcilia sodaliana*, &c. Amongst the sorrel at dusk were several *Opostega salaciella*, but it was not easy to see them when in a white net. I only took two *Cnephasia Penziana* at rest; they seem to be scarce this season.—J. B. Hodgkinson, 15, Spring Bank, Preston: *August* 3*rd*, 1874.

Note on Endopisa nigricana.—At page 198 of the 9th vol. of this Magazine, I recorded the precocious appearance, within three weeks from their larval stage, of six moths of this species; the bulk of the moths from the same lot of larvæ came out at the normal time,—during June and beginning of July, 1873—but the last individual remained twenty-two months in cocoon, and assumed the imago state on the 1st of June this year (1874). They were all kept together, and under like conditions throughout.—J. E. Fletcher, Pitmaston Road, St. John's, Worcester: 25*th July*, 1874.

Occurrence of Crymodes exulis.—I have again sugared (for sixteen nights) in the same locality where I have before obtained this species, near Loch Laggan, Inverness-shire, but only captured a single male this season, which came to sugar near midnight on the 7th inst. Moths were extremely scarce, and the weather very bad.—*Nicholas Cooke*, Gorsey Hey, Liscard, near Birkenhead.—21st July, 1874.

Natural History of Larentia olivata.—Several years ago I bred this species, but took scarcely any notes of it, and was, therefore, very glad to receive from Mrs. Wollaston, at the end of last August, some eggs which she had obtained from a moth taken at Teignmouth.

The larvæ hatched, but not all at once, during the second week in September, and were kept outdoors on a growing plant of *Galium mollugo;* the winter being mild, they continued to feed slowly all the time, and seemed to be content with withered leaves, when green ones failed them; by the last week in April they were full-fed, and most of them became pupæ during the first week in May. The larva of this species, like that of *pectinitaria,* is extremely sluggish, as might, indeed, be concluded from a glance at its form.

The egg of *olivata* is rather small for the moth, of an oval form, plump; the shell glistening, with no *raised* reticulation, but yet covered with the little facets as it were, which should be enclosed by reticulation; colour at first pale straw; then a palish vermilion-red; at last turning to a pale livid hue.

The young larva is pale vermilion-red, with blackish head, but this gay colour does not last long, soon giving way to the dingy appearance worn for the remainder of this stage, and the description of the full-grown larva will suffice for it altogether.

The full-grown larva is rather over five-eighths of an inch in length, very stumpy in figure, rugose and warty, with segmental divisions distinct, head not so wide as second, with lobes rounded, although narrow, the front and hind segments tapering very slightly.

The ground colour is a pale ochreous, mottled with deeper brown, and marked longitudinally with lines of darker brown; the dorsal line begins blackish on the second, becomes dark brown after that and is continuous up to the fourth, then it becomes a series of dashes on the front part of each segment up to the tenth, thence again it becomes continuous; on either side of the dorsal line come a sub-dorsal and lateral similar line, continuous to the end of the fourth, and from the tenth to thirteenth, but on the intermediate segments interrupted and turned aside by the warts; in this manner the sub-dorsal line is pushed in towards the dorsal at the middle of each segment, giving somewhat the look of a curved X, only the limbs of the letter do not touch; the lower or lateral dark line is also waved in its course by similar obstructions; the usual dots are large tubercular warts of the ground colour, and furnished with stiff bristles, and, on segments six to nine, there are besides pairs of conspicuous, transverse, oval warts paler than the ground; the spiracles are inconspicuous, being small and blackish; the head brownish with dusky freckles, and set with bristles; the belly more mottled than the back, and with traces of a central, and pair of lateral, dusky lines. In its usual position of rest, the larva keeps the head and thoracic segments all humped together.

The cocoon is very slight, formed on the surface of the soil, under a leaf or stem for covering, and with particles of earth, &c., drawn in; the pupa is three-eighths of an inch long, the thorax swelling above the line of the back, the eyes somewhat projecting, the abdomen tapering off gradually, and ending in a small blunt spike furnished with two large and six small spines with curled tips, by which the pupa is attached to the silk of the cocoon; the colour bright reddish, the abdomen deeper reddish, the spike dark brown.—JOHN HELLINS, Exeter: *June 2nd*, 1874.

Natural History of Asthena Blomeraria.—To Mr. W. H. Grigg, of Bristol, is due the credit of discovering the larva and food of this species, which has baffled us so long.

In July last year Mr. Grigg took the moths in some numbers, and found them free to lay their eggs in chip boxes, and he most kindly sent me a good supply of them, together with information as to every kind of green thing that grew in their locality; when, therefore, the larvæ hatched they were supplied with leaves of all the trees and plants which had been suggested, but they would touch none of them; we then thought of lichens, and supplied them also, but with no better success; all our young larvæ died of starvation.

However, in September, Mr. Grigg visited the locality again, and, after a good deal of hard work, succeeded in beating from some wych elms growing there a large number of Geometers; most of them proved to be *Abraxas ulmata*, but with them were several others of a smaller species, which, from their likeness to the larva of *Venusia cambricaria*, gave us great hopes. They were, however, horribly ichneumoned, nine out of every ten being thus infested; but, luckily, some three or four sound ones were secured, and this summer removed all doubt by appearing in the imago state as *A. Blomeraria.*

Being now sure of the food, Mr. Grigg again procured eggs this summer, and generously halved his supply with me; but the young larvæ in confinement are so abominably restless and obstinate, that, although I had considerably more than a hundred eggs, I have been able to rear barely twenty-five larvæ, and Mr. Grigg not so many. No wonder we failed with them last season, when together with wych elm we gave them so many other sorts of food to choose from, for now, with nothing but the wych elm leaves in their bottle, I found they would not feed at all, but would continually crawl to the light, and entangle themselves together till they were starved: at last I shut them up with some twigs in a large tin box, making the cover quite secure by stuffing cotton wool all round, and left them to themselves for some days, and in this way I managed to rear the number above mentioned.

This year (1874) the eggs were laid on July 9th and 11th, the larvæ hatched on the 18th and following days, and now as I write (August 14th) all are in their last skin, and several nearly full fed.

Last year (1873) I had the eggs during the last week of July and the first week of August, the larvæ hatching from July 30th onwards, but living only a day or two: the larvæ, nearly full fed, were captured during the last week in September, and the survivors among them changed to pupæ in a few days.

From the manner in which the moth deposits her eggs in any crevice in the chip box, I imagine that in freedom she would arrange them in small batches along the ribs on the under-side of the leaves, which in the wych elm are very prominent, and I noticed that the larvæ prefer to remain on the under-side of the leaves throughout their existence, carefully spinning a thread wherever they move; in feeding, at first they eat only the under-surface of the leaf, but by the time they are a quarter of an inch long, they eat holes quite through the leaves, generally avoiding the ribs, at last reducing them almost to skeletons.

The egg is small, somewhat brick-shaped, being long and flattened, but one end is squarer and thicker than the other; the shell glistening, and covered with a diamond pattern of *sunk* lines, each diamond having a central sunken dot;* the colour at first pale, afterwards rich deep yellow, with the edges still deeper, and a red tinge near the bigger end; at last becoming again quite pale, but with a dark spot.

The young larva escapes by eating out one end of the egg; in colour it is whitish, with a purplish tinge in the front segments from the internal organs showing through; as it grows it becomes quite shining white; after the first moult it is glassy looking and translucent, with an internal green stripe through the body, probably caused by the presence of food; when about three-eighths of an inch long it is more opaque, with the back whitish-green, a broad dark green sub-dorsal stripe, the head greenish-white, all the rest pale green; the bristles conspicuous.

Soon after attaining the length of three-eighths of an inch, it passes its last moult, and, after that, grows rapidly; the markings are at first paler in the lighter portions, and darker in the dark portions, than they become afterwards.

The full-fed larva is about three-quarters of an inch long, slender, but cylindrical and plump, of almost uniform size throughout, except that the head is narrower than the second segment, and the last three segments taper off both in width and in thickness; the skin soft and rather glossy, wrinkled at the divisions, puckered along the sides, and set with a few hairs.

The general colour on the back and sides is pale greenish-yellow, the belly slightly greener; the crown of each lobe of the head is marked with a streak of crimson-brown; the collar is shining; on segments 2—4 is a long oval dorsal patch of pinkish or crimson-brown, widest on 3, and ending in a blunt point at the division between 4 and 5; through this runs a central thread of yellow, bordered with an edging of brown, darker than the patch, which has also a darker line running along just inside its outer curved edged; about the middle of 6, commences a pair of lateral blotches, which run through 7 and 8, of either rose-pink or crimson-brown, having a streak of darker brown just in the place of the sub-dorsal line; these blotches have waved edges, which nearly meet at the segmental divisions both above and below; through 5—11 inclusive, there is no dorsal line whatever, but on 12 and beginning of 13, in the place of the dorsal line, is a broad stripe of rose-pink, bearing at each end a dark spot of crimson-brown: the spiracles roundish, but very hard to be seen, being greenish-yellow on the ground colour, and brown on the coloured blotches; so too with the usual warts, on the ground they are scarcely to be seen, but on the blotches they become prominent, shining, and dark brown.

The above description applies to all the larvæ I have reared this season, for there is scarcely any variation amongst them, but among the captured larvæ last year there was a great deal; this was shown not only in the depth of colour of the blotches, but also in their size, and by their absence; one variety was greenish-yellow all over with no markings whatever; another had the blotch on 2, 3, and 4, and a dot on 12, and nothing else; another had a dark dorsal spot in the middle of 5; another had a similar spot on 6, almost connecting the lateral blotches; the example had a dark spot on the side of the anal legs.

The larva, last year, retired into the earth furnished them for pupation, and there made weak, roundish, oval cocoons, nearly half an inch long, and formed of peaty fibres and earth, spun together with a slight lining of silk.

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* *The egg of A. candidata* has also this character of being embossed as it were by a pattern of *sunk lines.*

The pupa is about one-third of an inch long, plump in character, the abdomen tapering rather suddenly to a point, which ends in two slightly diverging curled-topped bristles, these last being attached to the threads that line the cocoon; its colour is a light reddish-brown; the tumid margins of the wing-covers yellowish-ochreous; the centres of the wings, and the antenna-cases, olive; the tip of the abdomen black.—ID.: *August 14th*, 1874.

Capture of Noctua sobrina.—I have had the good fortune to discover a new locality for *Noctua sobrina*, in a heathy place some distance south of Loch Rannoch, Perthshire. Last spring I accidently found an injured larva of what was (from the description given in Mr. Stainton's Manual) so suggestive of *N. sobrina*, that I determined to work for the perfect insect when due. I was rewarded by taking several specimens, and also by obtaining eggs which I duly sent to Messrs. Buckler and Hellins for future notes. I find this species exceedingly local in its habitat.—JOHN T. CARRINGTON, Poole Road, Egremont, Birkenhead: *August 1st*, 1874.

Capture of Pachnobia alpina.—I had the pleasure of capturing a specimen of this fine and rare species this summer in Perthshire. It was taken in the Breadalbane division (as divided by Dr. White in his *Fauna Perthensis*), close to the summit of a mountain of upwards of 3000 feet in height.

It may interest some of your readers to know that this was the only result of fourteen whole nights and several days spent at that height. I sugared each night, but it produced nothing but an occasional *Noctua festiva*. The nights spent at this altitude were alternate, the other evenings were occupied by sugaring in the valley where I stayed; these latter sugarings produced many moths, so that the paucity of moths at sugar on the mountains could not be the result of a bad season. Considering the result, and the extreme discomfort of mountain tops at night, for I was many times enveloped in thick clouds for hours together, I do not think it worth while to work again for this cloud-loving species.

I believe there are only four previous records of this species being taken in Great Britain, viz.: the two named in the "Manual;" a third, by Mr. Eedle, on Schiehallion, in 1870; and one bred from a pupa found while hunting for *Coleoptera* in Braemar in 1873 (*vide ante*, x, 88), by Mr. Allin. These may be called accidental captures, so I feel a little more pleasure in having gone for and obtained this species.—ID.

On the larva of Noctua subrosea.—From M. Berg's description (translated in your last number, p. 67) of the larva of the Russian *Noctua* considered to be a variety of *subrosea* by Dr. Staudinger, I am inclined to think it will prove to be a distinct species.

I sent living larvæ of our *subrosea* to my friend M. Guenée, who thus describes them:—"The caterpillar is very pretty: it is of a greyish-flesh colour, striated and "marbled with brown, with the vascular and sub-dorsal lines somewhat large, clearly "defined, continuous, straight, and of a citron-yellow speckled with brown; the latter "speckled on the lower part with reddish-yellow. The stigmatal line is very large, "of a pale sulphur-yellow, and surmounts a deep brown ventral band; stigmata "brown; head concolorous, with two dark marks."

The larva of our species very much resembles the paler varieties of the larva of *Hadena pisi*.

The specimens of the Russian moth which were shown to me by Baron von Nolcken, were very much smaller than our *subrosea*, and the superior wings were strongly tinged with blue.

Dr. Staudinger and M. Berg refer to Herrich-Schäffer's figures as representing the Russian form, but this is certainly an error; they represent our *subrosea*, and I have little doubt that they were taken from specimens which originally belonged to me, as I gave a number of specimens to the late M. Becker in 1848, which were captured by Mr. English at Yaxley; and a year or two afterwards I sent a series of bred specimens to Herrich-Schäffer. I do not think the Russian form was discovered when his figures were published.—Henry Doubleday, Epping: *August* 13*th*, 1874.

Note on Lobesia reliquana.—My friend, Mr. C. G. Barrett, has followed Professor Zeller and Dr. Wocke in the error into which they have fallen, in referring the *reliquana* of Hübner to the *Botrana* of the Vienna catalogue.

Hübner figured our insect under the name of *permixtana* (*Tort.* No. 75), supposing it to be the species given under this name in the Vienna catalogue. He appears to have afterwards changed his opinion, as he figured another *Tortrix* under the name of *permixtana* (*Tort.* No. 187), and in his catalogue gave our species the name of *reliquana*. The two species stand thus:—

"No. 3637.—*Hemimene permixtana*, Schiff., Verz., *Tort.*, D. 19. Hübn., *Tort.*, 187."

"No. 3674.—*Asthenia reliquana.*
„ *permixtana*, Hübn., *Tort.*, 75."

It is clear from the above extract that Hübner applied the name of *reliquana* to our insect, and not to *Botrana*, W.V.—Id.

Domestic Entomology: a word in season.—Cockroaches are doubtless necessary in the scheme of creation of this best of all possible worlds, and even from a merely human point of view, may in some sort be deemed useful. They are said to be a certain remedy for the plague of bed-bugs, it having been averred by an eye-witness that the latter are the prey of the former, but most simple-minded persons would deem the remedy to be almost as bad as the pest. Apart from this consideration, seeing that *Blattæ* will and do exist in houses which are devoid of *Acanthiæ*, and that they are then an unmitigated nuisance that rapidly increases, it is, I think, beyond controversy, desirable that it should be speedily diminished. The most tender-hearted maiden who, over her shrimps or lobsters without any feeling for *their* sufferings, inveighs against the cruelty of fly and beetle-butchers, will scarcely give the least sign of sympathy for slaughtered cockroaches, nor, however sensational the recital, could the reporter say

"The wandering fair one turned to chide."

And if the proposition of "Death to the *Blattæ*" were put to the vote at a meeting of metropolitan householders (in the parliamentary sense, for it may be disputed if in any other persons can be householders who share their tenements with such vagabonds), can it be doubted that the chairman would announce "The Ayes have it."

Without venturing to offer any opinion on the merits of the various means advertised for getting rid of cockroaches—the efficacy of one of which, however, is rendered doubtful by the announcement of its powers being headed by a fancy portrait of a stag-beetle as one of the noxious creatures—it may be of service to make known the following personal experience with a method that is not "Registered," nor "Patented," nor "Breveté s.g.d.g."

Several years since I read an extract from the Boston "Journal of Chemistry" that cockroaches had an intense aversion to borax, and any place they frequented would be cleared of them if the powder were placed in their haunts. Circumstances favoured an experiment, and in the course of two or three weeks I found that the prescription, used daily, had rendered my kitchen free from the hordes of these hexapod banditti that had long made their nocturnal raids there, their carcases every morning showing the havoc that had been made in their ranks. It has been said that

"We murder to dissect,"

but I did not make any post-mortem examination of the "Subjects" to ascertain how the borax had effected them;—I was satisfied they were dead. I may avoid the felonious imputation altogether by saying, as indeed has been said already, that in such a case "Killing is no murder."

Recently, I saw an extract from the American "Cultivator" to the following effect:—

"No insect which crawls can live under the application of hot alum-water. It will destroy red and black ants, cockroaches, spiders, bugs, and all the other crawling pests which infest our houses. Take two pounds of alum and put it in three or four quarts of boiling water; let it stand on the fire until the alum is melted, then apply it, while nearly boiling hot, with a brush to every joint and crevice in your closets, bedsteads, pantry-shelves, and the like. Cochroaches will flee the paint which has been washed in cool alum-water. Powdered alum will keep bugs at a respectable distance, and travellers should always carry a bundle of it in their hand-bags to scatter over and under their pillows in hotels, &c. While staying at an hotel once, with a party, most of whom complained sadly of the nightly attacks of these disgusting insects, I was able to keep them entirely at bay by its use, and I distributed the contents of my bundle among the party, to their great relief."

It should be pleasing to housekeepers, as well as to travellers, to know of the above cheap remedy for the house pests mentioned. But is it real? Possibly some housekeepers may favour the world with the result of their experiments with the alum-cure in the matter of "cockroaches, ants, spiders, and all other crawling pests"—except bugs. These latter are things that no one will confess to having in his dwelling;—hotel and lodging-house keepers are virtuously indignant at the bare suspicion of such creatures, and will declare that the vermin, if found on their premises, must have been brought by the lodgers themselves. Once, indeed, I am told by a friend, that at an hotel in Paris, the *chambrière*, on being shown a full-grown *Acanthia* on the bed in the month of ~~April~~ Feb., merely said, with great *naiveté*, "I never saw one so early;" but this was an exceptional admission. Yet some *traveller*, I hope, who has hitherto found, in more senses than one,

"His warmest welcome at an inn,"

will have no compunction in telling us if he has tried the effect of alum-powder placed in his bed (possibly not used only "on and under his pillow") in getting him a safe deliverance from "the terror that walketh by night;"—and we will excuse the reticence of the housekeepers.—J. W. DOUGLAS, Lee: *July 27th*, 1874.

Capture of Aphelocheirus æstivalis in Norfolk.—During the last winter I showed to my friend Dr. J. A. Power, a water-bug, which had been given to me, mounted whole, as an object for the microscope; he pronounced it to be *Aphelocheirus æstivalis*, a great rarity. I learnt where it was taken, and have secured a few. The species is not scarce among weeds in a running stream at Castessey, about four miles from Norwich. In the middle of June, it was mostly in the larval form, six to one of the perfect insect; at the end of the month, the perfect insect was much more abundant; and on the 20th inst., there was not more than one larval form in eight taken. I did not seen any swimming about, nor did I get one winged specimen. I have also heard of a habitat in another stream at Earlham.—JAMES LAUNDY BROWN, The Grove, Chapelfield, Norwich: *July 3rd*, 1874.

Note on some Odonata (Dragon-flies) from the Sandwich Islands, &c.—Mr. G. F. Matthew, F.L.S., late of H. M. S. "Repulse," now in England, collected a considerable number of Dragon-flies at various ports on the west coast of North and South America; including some from the Sandwich Islands, in the month of June, 1873. From the latter locality are four species:—

1. *Anax Junius*, Drury, a common species in North America, and already recorded from the Sandwich and other Polynesian Islands.

2. The nearly cosmopolitan *Pantala flavescens*, F.

3. A *Tramea* that I cannot separate from *T. lacerata*, Hagen; originally recorded from Texas, Maryland, and Mexico. I have it from Texas, and from the North of California, collected there by Lord Walsingham (a very northern locality).

4. A small Agrionide not yet determined.

Of *A. Junius, P. flavescens, and T. lacerata*, Mr. Mathew says they are abundant in the Islands, and "prey on the produce of what the Hawaiians call the 'army "worm.' It is a species of *Hadena*, and occurs in countless multitudes. These large "Dragon-flies used (or seemed) to follow me in numbers as I walked through the "grass, darting off to the right or left of me in full chase when I disturbed a moth. "They were numerous on board our ship, although we were anchored more than two "miles from the shore.

At Payta, Peru, Mr. Mathew caught several of *Pantala hymenæa*, Hagen, a species that I think had not been recorded from south of Mexico. He says of it:— "This fine species occurred along the sea-coast. I cannot imagine where the larvæ "fed, as there was no fresh water within many miles of Payta, and rain is almost "unknown there. Just above high-water mark in some places, there were large "patches of a species of ice-plant *(Mesembryanthemum, sp.?)*, and these Dragon-"flies were always to be found hawking above them." The species is no doubt migratory like its congener *P. flavescens*, and those that Mr. Mathew saw were *en voyage*.

From Vancouver's Island Mr. Mathew brought our familiar *Libellula quadrimaculata*, which occurs over all the boreal parts of the Northern Hemisphere, and *is well known* to be migratory.—R. McLACHLAN, Lewisham: *4th July*, 1874.

Review.

ON THE TRANSFORMATIONS OF THE COMMON HOUSE FLY, with notes on allied forms; by A. S. PACKARD, Jun., M.D. (from the Proceedings of the Boston Society of Natural History, Vol. xvi, pp. 136—150, 1 plate). Of all insect-pests of the human race, there is—strange though it be—scarcely one of which the earlier stages are less popularly known than those of the House Fly. To entomologists who have specially attended to the subject, it was certain that the eggs were laid in dung, and that the metamorphoses took place therein. Dr. Packard, in this interesting memoir, traces out all its history from eggs laid in fresh horse-droppings; and summarises it as follows:—"The eggs are about one hundred and twenty in number, and in twenty-" four hours the larvæ are hatched. There are three stages of the larval state, and con-" sequently two moults. The first stage lasts about one day or twenty-four hours. " The second stage lasts about one day. The third stage lasts three or four days. " The pupal state lasts from five to seven days. The period from the time of hatching " to the exclusion of the imago lasts from ten to fourteen days in the month of August." Just as there are at least three species commonly confounded under the term "Blow Fly,"—of which the true *Musca* (or *Calliphora) vomitoria* is possibly the least abundant—so there are several species ordinarily known as the "House Fly," and Dr. Packard takes particular care to point out in what way that ferocious little animal *(Stomoxys calcitrans)*, which takes a mean advantage of humanity by driving its proboscis through our stockings when taking our ease in slippers, differs from the comparatively harmless domestic Dipteron. He might have gone further, and instructed his uninitiated readers that the merry creatures *(Homalomyia cunicularia)* which perform an aerial ballet over one's head when lying half-asleep and half-awake in the early morning, are *not* "House Flies." Although the parts relating to embryology, &c., will probably not much interest the non-entomological public, Dr. Packard will do well to secure for his memoir more readers that it will have in the pages of the proceedings of a scientific society.

ENTOMOLOGICAL SOCIETY OF LONDON: *July 6th*, 1874.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Mr. S. Stevens exhibited examples of *Dianthœcia albimacula*, bred at Portsea by Mr. Moncreaff; also *Cathormiocerus maritimus*, Rye, and *Tychius hœmatocephalus* taken by the same gentleman; and *Agrotera nemoralis* from Abbot's Wood, Sussex, taken by himself.

Mr. Bond exhibited minute parasites from a bat, probably identical with *Argas pipistrellæ;* also *Acari* found on a fly, and Acarus-galls on leaves of damson: the galls being very numerous, but the fruit-bearing powers of the tree not being thereby affected. (These galls are probably the same as those found on sloe; and, according to Kaltenbach, are the work of *Volvulifex pruni*).

Mr. W. C. Boyd exhibited two examples of *Thecla rubi* from Sussex, having a pale spot in each fore-wing. He remarked that he had only seen two individuals of the species in the locality in which they were captured, and both were of this peculiar variety.

Mr. Wormald exhibited a collection of Butterflies from Japan, captured by Mr. H. Pryer.

Mr. W. Cole exhibited leaves of ash affected by small dipterous larvæ (probably *Cecidomyia)*, which caused the two edges of the leaflet to turn upwards and meet above, thus assuming a pod-like form. They were from West Wickham.

Mr. Champion exhibited *Amara alpina*, and other rare British *Coleoptera*, recently captured by him at Aviemore, Inverness-shire.

Mr. Grut exhibited larvæ, pupæ, and imago of a dipterous insect found in his house, attacking an old piece of Turkey carpet. The larvæ were long, slender, and somewhat like a wire-worm. The pupæ were enclosed in a kind of cocoon formed of particles of the wool of the carpet. Prof. Westwood thought the fly was probably a species of *Scenopinus*.

Mr. F. Smith exhibited sand-cocoons found in a salt marsh near Weymouth. They were the work of a dipterous larva, and were found lying on the top of wet salt sand. Prof. Westwood said they were probably formed by *Macherium maritimum*, one of the *Dolichopodidæ*.

Mr. Butler exhibited a very rare book from the library of Mr. Janson, viz., Lee's "Coloured specimens to illustrate the Natural History of Butterflies," published in London, in 1806; the issue having been limited to a very limited number of copies. He gave a detailed account of the synonymy, &c., of the species figured.

Prof. Westwood exhibited examples of *Haltica (Batophila) ærata*, which he had found to be very injurious to young leaves of garden-roses; also portions of a ripe walnut attacked by a larva. Mr. McLachlan said that this was probably that of the acorn-moth *(Carpocapsa splendana)*, and Mr. Moore said that he had bred that species from a walnut. He further exhibited and remarked on the yucca-moth (*Pronuba yuccasella*, Riley) bred by him from cocoons sent by Mr. Riley. The existence of this insect appeared to be absolutely necessary for the fertilisation of the flowers of the Yucca, the pollen being collected on the peculiarly formed palpi, and transferred to the stigmatic surface as the insect passed from flower to flower, as detailed by Mr. Riley in several of his Reports on the Insects of Missouri. Prof. Westwood concluded by exhibiting a number of dark coloured honey-bees, found near Dublin, attacking a straw hive of ordinary bees. They were remarkably free from pubescence, and looking ragged and worn. He considered they were only a degenerated form of the hive-bee, and were probably identical with what Huber calls "black bees," the existence of which had been scarcely noticed since his time.

The Rev. H. S. Gorham read descriptions of new species of *Endomychidæ*, supplementary to his "Endomycici Recitati." Also remarks on the genus *Helota*, belonging to the *Nitidulidæ*, with description of a new species from Japan.

Dr. Sharp communicated a supplementary paper on new species of various groups of *Coleoptera* from Japan.

Prof. Westwood read descriptions of new species of *Cetoniidæ*, principally from the collection of Mr. Higgins, and accompanied by drawings.

Part iii of the Transactions for 1874 was on the table.

The President announced that the Library of the Society would, at present, remain at Bedford Row, pending the result of negociations in progress for its removal *to* more suitable quarters.

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS OF NEW SPECIES (No. 18).

BY H. W. BATES, F.L.S., &c.

Sub-family SIAGONINÆ.

COSCINIA PICTULA, *sp. n.*

C. fascigeræ (Chaud.) *affinis. Parva, setosa, nitida, nigra, punctata; elytris fascia basali maculaque suturali-apicali sanguineis; palpis, labro pedibusque fusco-fulvis; antennis castaneis.* *Long.* 2 *lin.*

Of the flattened form of *C. Semelederi*, but smaller, and the elytra distinctly punctate-striate, with a row of punctures down each interstice. In colour and size it approaches *C. fascigera*, but the red colouring of the elytra consists of a broadish basal belt and an oval spot over the suture near the apex; a red sutural border sometimes connects the two, and the apical spot is also liable to be enlarged so as to extend to the margins. The head and thorax are covered with large separate punctures, and the dorsal line of the latter is very strongly impressed.

Mesopotamia; many examples.

APOTOMUS XANTHOTELUS, *sp. n.*

A. rufo brevior et convexior; haud setosus; atro-fuscus, sub-nitidus; antennarum articulis duobus basalibus, pedibusque rufo-castaneis, illarum articulis quatuor apicalibus flavis; palpis fulvo-testaceis. *Long.* 1½ *lin.*

Dull blackish-brown; legs clear chestnut-red; antennæ with the two basal joints reddish and the four apical ones yellow. The elytra are more convex than in *A. rufus*, and rather more strongly punctate-striated, with narrower interstices. The body appears destitute of erect hairs.

Celebes (Wallace); two examples, in one of which the thorax is pitchy-red.

Sub-family SCARITINÆ.

CARENUM PORPHYREUM, *sp. n.*

C. smaragdulo (Westw.) *affine. Oblongo-ovatum, convexum; nigrum, nitidum, thorace latissimo, late viridi-limbato; elytris læte violaceis, viridi-marginatis, ovatis, lævibus, postice unipunctatis; tibiis anticis tridentatis.* *Long.* 10 *lin.*

Of the same form as *C. smaragdulum*. Anterior tibiæ with a well-developed third tooth, surmounted by two other denticulations. The head is broad; the frontal furrows short, commencing on a level with the middle of the eyes, and slightly diverging posteriorly; the eyes less prominent than in *C. Odewahnii.* The antennæ are rather slender, the apical joints gradually tapering. The thorax is very broad, as in *C. Odewahnii;* the hind margin is not lobed, and distinctly trisinuate; it has a very broad light green border, the inner edges of which are violet. The elytra are elongate-oval, not narrowed to the base, nor depressed near the suture; the humeral angles have an elevated tooth; there is a row of four ocellated punctures on each side of the base, and one discoidal puncture behind, but no trace of sculpture on the surface, which is of a rich violet, shading into green in some lights towards the base and apex; the margins, including the broad epipleuræ, being golden-green. The sternal segments and sides of the abdomen are also green. The labial palpi have their terminal joint only slightly dilated.

West Australia.

CARENUM BREVIFORME, *sp. n.*

Breviter oblongo-ovatum, nigrum; thorace et elytris lateviridi-limbatis, his disco violaceis, striato-punctatis, postice unipunctatis; capito magno, sulcis frontalibus brevibus parallelis; tibiis anticis tridentatis.

Long. 7½ *lin.*

The terminal joint of the antennæ is short and ovate. The thorax is twice as broad as long; lunate, with prominent anterior angles, and a very short and rather narrow lobe in the middle of the base. The elytra are extremely short, ovate, convex; depressed at the suture, and with rows of shallow but large punctures, besides the single large discoidal posterior puncture; the borders are broadly emerald-green, and the disc violaceous near the suture and green borders. The underside is black. The anterior tibiæ have three distinct teeth and two denticulations.

West Australia.

CARENUM SUBPLANATUM, *sp. n.*

Cylindrico-oblongum, nigrum, nitidum; elytris oblongo-ovatis, convexis, dorso planatis, postice bipunctatis, nigro-violaceis; thorace paulo transverso; capite post oculos transversim impresso, sulcis frontalibus paulo obliquis; labro antice recto; tibiis anticis bidentatis.

Long. 7½ *lin.*

A species approaching in some of its characters *Eutoma* and *Carenidium,* but having the moderately dilated labial palpi and narrowed apical antennal joint of *Carenum*. In form it most nearly resembles *C. Bonellii*, but it is rather narrower, and the elytra are more rounded at the shoulders and distinctly flattened for a considerable breadth on each side of the suture, the limits of the flattening being distinctly marked. The head is similar in form, but presents several striking points of difference; the transverse depression behind the eyes is deep and continuous right across; the eyes are much less prominent; the lobes of the clypeus in front of the eyes are not distinctly grooved, and lastly, the labrum is straight, or even somewhat emarginate, in front, with a row of distinct large punctures. The maxillary palpi have their terminal joint nearly linear. The elytra have no trace of sculpture beyond the posterior fovea and a cluster of ocellated punctures at the base, lying in irregular depressions, with the usual marginal punctures. The margins are thickened near the apex.

Nicol Bay; West Australia.

CARENUM PLANIPENNE, *sp. n.*

Elongatum, parallelum, depressum, elytrorum dorso late fortiter planato; nigrum, nitidum, thoracis marginibus angustis elytrisque omnino smaragdinis; capite lato, rodundato; sulcis frontalibus longis, fortiter curvatis; oculis haud prominulis; thorace paulo transverso, basi lobato; elytris humeris elevato-dentatis, postice bipunctatis; tibiis anticis bidentatis. *Long.* 10 *lin.*

The head resembles much that of *Carenidium*, to which genus the species would belong, were it not that the labrum is not emarginated, but trisinuate, and approaching that of the typical *Carena*. The labial palpi, too, are not so strongly dilated as in *Carenidium;* but the maxillaries are more dilated than in *Carenum*. The species, therefore, is a connecting link between the two genera. The body is elongate, parallel-sided and depressed, with the elytra flattened for a broad space on each side of the suture; the colour is olive-black, with the margins of the thorax and the whole elytra clear green, the colour being duller along the centre of the latter. The antennæ are slender, with the apical joint tapering, and the sides of the joints only densely pubescent. The frontal furrows are curved, and so strongly impressed that the lateral intervals resemble orbits, and the eyes are not prominent. The thorax is a little broader than long, parallel-sided until near the base, where it is sinuate-angustate to the distinct basal lobe. The elytra are retuse at the base, with rather advanced and dentate shoulders, the lateral margins are thickened as in Eutoma; the surface is smooth, and there is a row of three or four ocellated punctures at the base. The metasternal episterna are very short. The ventral segments have each two punctures.

Nicol Bay; West Australia.

NEOCARENUM CYLINDRIPENNE, *sp. n.*

N. elongato angustior; nigrum, nitidum; elytris quam thorace multo angustioribus, omnino transversim rugosulis, punctis ocellatis submarginalibus seriatim ordinatis. *Long.* 11 *lin.*

Apparently closely allied to *N. rugosulum*, W. McLeay, but differs in the frontal furrows being remarkably deep, *N. rugusolum* having "capite leviter bisulcato;" and also in the absence of all trace of elytral striæ. The head is similar to that of *N. elongatum*, the frontal furrows being deep, strongly flexuous, widely divergent behind, and connected at their ends (on a level with the posterior margin of the eyes) by a transverse furrow. The eyes are enclosed behind by a thin orbit, which does not project beyond them. The surface of the head is smooth and shining. The thorax does not differ from that of *N. elongatum*. The elytra are much narrower than the thorax, nearly cylindrical, very slightly narrowed to the base, with the humeral angles scarcely advanced, and the suture not depressed; the whole surface is covered with short and very irregular shallow wrinkles, coarser near the sides, where they obscure the sub-marginal row of large ocellated punctures. The anterior tibiæ are bidentate, the middle tibiæ unispinose; the suture between the second and third ventral segments quite obliterated in the middle. The antennæ are glabrous, with the fifth to eleventh joints coarsely punctured and pubescent on their edges; the terminal joint tapers to the tip.

West Australia.

NEOCARENUM RETUSUM, *sp. n.*

Elongatum, latior, minus convexum, nigrum, subtilissime coriaceum, vix nitidum; elytris basi valde retusis, humeris sub-falcatis, punctis submarginalibus nullis; tibiis anticis extus tridentatis, subtus valde dentatis, intermediis bispinosis. *Long.* 11½ *lin.*

The head in this remarkable species resembles that of *N. elongatum*, with the exceptions that the lateral lobes project much more, and are more angular in front of the eyes, and that the posterior orbits project beyond the eyes; the frontal furrows are similar, but the transverse furrow behind continues laterally to the hind margin of the eye. The antennæ are still more glabrous, and the joints 5—11 have strong punctulated grooves on their edges. The thorax is rather shorter and broader, with rectangular anterior angles, and neither anterior nor basal foveæ. The elytra are as wide as the thorax, very obtusely rounded and abruptly declivous at the tip, depressed on the back and broadly retuse-concave at the base, with projecting shoulders, the tooth of which is somewhat curved laterally as well as upwards; they are uniformly and minute coriaceous, without the usual large punctures. The anterior tibiæ have three teeth, and the usual denticulations on the carina beneath are enlarged into two broad conspicuous teeth. The middle tibiæ have two long and strong spines. The metathoracic episterna are very remarkably small and rounded. The maxillary palpi are very slightly dilated (labials wanting).

Nicol Bay.

EUTOMA CAVIPENNE, *sp. n.*

Gracile, angustum, nitidum; capite valde exserto, ovato, oculis nullo modo prominulis; thorace nigro, late viridi-marginato; elytris dorso valde depressis, lævissimis, impunctatis, violaceis, marginibus (basi et apice dilatatis) viridibus. *Long.* 7 *lin.*

The head is very different from that of *E. tinctilatum* and *splendidum;* the eyes being flat or even sunk, so that the form is ovate, broadest before the eyes and gradually narrowed behind to the thorax; the space between the exterior teeth of the epistoma is narrow and deeply concave; the frontal furrows are narrow, flexuous, scarcely divergent, and do not reach the level of the hind margin of the eyes; the surface is glossy, smooth and black, with the sides of the neck violet or blue. The thorax is rather smaller and narrower than the head; black, with broad brilliant green border. The elytra are of the width of the thorax, and about as long as head and thorax taken together; they have a small triangular emargination at the base of the suture, and a broad concave depression down the middle; there is no trace of striæ or punctures; the usual ocellated points on each side of the base are one, or (sometimes) two, very large, and the marginal punctures are also large and widely separated: the colour of the whole disc is rich violet, with brilliant green basal, apical and lateral borders, but sometimes the green borders are much wider. The under-surface and legs are shining black.

West Australia.

CARENIDIUM SAPPHIRINUM, *sp. n.*

C. gagatino brevior, magis ovatum; convexum, nitidum, læte cæruleo-violaceum, marginibus viridibus; subtus viridiæneum; capite alutaceo; thorace transverso, rotundato, basi lobato; elytris ovatis, subtilissime punctulato-striatis. Long. 12 lin.

Head very similar to that of *C. gagatinum*, frontal sulci very deep, widely divergent behind and extending much beyond the eyes, the latter prominent but encased behind in wide orbits; labrum deeply emarginated in a curve. Thorax much shorter than in *C. gagatinum*, and more regularly rounded; the middle of the base forms a distinct, short, truncated lobe. The elytra are ovate, with shoulders entirely effaced, convex on their surface, with lateral margins not at all thickened. The anterior tibiæ have two long teeth; the middle tibiæ one short spine.

Nicol Bay; West Australia.

TERATIDIUM, *g. n.*

Corpus maxime elongatum. Palpi maxillares et labiales apice dilatissimi; caput rotundatum; sulci frontales vix impressi, brevissimi, postice convergentes. Tibiæ anticæ unidentatæ; intermediæ extus simplices. Elytra basi utrinque plicata, marginibus lateralibus incrassatis; disco impunctato. Metasternum brevissimum.

The extraordinary insect for which this new genus is necessary, agrees with *Monocentrum* only in the absence of the usual tooth or teeth of the anterior tibiæ above the apical one; but the excessive dilatation of the terminal joint of the maxillary (as well as of the labial) palpi and the very short faint frontal groves, form very distinct and peculiar characters. The head is broader than the thorax, rounded and obtuse in front; the four teeth of the clypeus are of equal size; the labrum bisinuate, prominent in the middle. The antennæ are naked, with a few large punctures on the margins of the joints. The eyes are large and prominent, encased behind in broad orbits. The thorax is much longer than broad, oblong, but narrowed behind and a little sinuate-angustate near the base. The elytra are cylindrical, but appear broadened behind, owing to the excessive thickness and width of the marginal rims, which, at the sutural apex, are overlapped by a lobular projection of each elytron; they are slightly narrowed to the base, which has on each side a transverse wheal, *posterior* to which is a depression containing eight or nine ocellated punctures, but the declivous base itself has no such punctures; the shoulders have a very projecting tooth, and the base at the suture is concave.

TERATIDIUM MACROS, *sp. n.*

Nigrum, sub-nitidum. *Long.* 13½ *lin.*

To the above detailed generic description it may be added that the marginal row of ocellated punctures is not on the extreme margin as in *Carenum*, nor moved towards the disc as in *Neocarenum*, but lies just above the marginal furrow. The ventral segments have no punctures, and the suture between the second and third is complete.

Nicol Bay.

Obs.—All the above new species of the *Carenum* group were obtained from the reserved collection of M. Du Boulay, in which they were nearly all represented by single specimens. From the same collection I obtained other species, allied to the common *C. marginatum* and *C. Bonellii*, but it is almost impossible to ascertain whether some of the numerous descriptions published by Mr. W. MacLeay and Count Castelnau do not apply to them.

Bartholomew Road, Kentish Town, N.W.:
July, 1874.

ON A NEW FAMILY OF EUROPEAN AQUATIC *COLEOPTERA*.

BY D. SHARP, M.B.

Some few weeks ago I received a letter from Dr. Leconte, of Philadelphia, in which he enclosed two specimens of a minute Coleopterous insect. These two specimens had been captured by the late Mr. G. R. Crotch in Southern California, and Dr. Leconte specially directed my attention to them as being of great interest, inasmuch as he considered them to be representatives of a new family of Clavicorn *Coleoptera*. When the specimens reached me, they had unfortunately entirely lost their heads and thoraces; nevertheless, the insect interested me even more than Dr. Leconte had anticipated; for I felt sure, from the fragments that had reached me, that not only was it the representative of a new family of *Coleoptera*, but that that family was an inhabitant of Europe as well as of North America. I accordingly wrote to Dr. Leconte, informing him of the accident that had occurred to his specimens, and of my suspicion that an allied insect was a native of Europe, and, on receipt of my letter, he was so kind as to forward me two other specimens of his *Hydroscapha natans*, as well as a proof slip of his description thereof. I think it well to preface my observations on this insect by giving verbatim Dr. Leconte's description of it.

"Hydroscapha, *n. g.* (*Hydroscaphidæ*), Leconte.

"Head moderately large, eyes lateral, coarsely granulated, somewhat transverse; antennæ scarcely longer than the head, inserted under the edge of the front, with seven distinct joints; 1st stouter, 2nd and 3rd each as long as the first, but narrower, 4th to 6th together shorter than 2nd and 3rd united, gradually wider, 7th about as long as the 2nd and 3rd united, elongate oval, scarcely wider than the 6th, with an indistinct transverse suture near the base, and another very near the tip, which is sub-acute.

"Labrum transverse, rounded in front concealing the mandibles. Maxillæ large at the base (lobes not examined), maxillary palpi less than half as long as the antennæ, 1st and 4th joints long, 2nd and 3rd united equal to either of the others, not dilated; mentum trapezoidal, rather large, broader than long, wider in front; ligula rather large, emarginate, palpi short, rather stout, 2nd and 3rd joints broader and shorter than the 1st.

"Prosternum very short, hardly visible, front coxæ transversely conical, contiguous, trochanters large, cavities narrowly closed behind; middle coxæ separated, small, mesosternum protuberant; metasternum large, side-pieces narrower and pointed behind, hind coxæ widely separated, laminate, the plate curved in arc of circle behind, and half as long as the 1st ventral.

"Abdomen conical, with six free segments, 1st large, longer than the four following united, which are equal in length, but rapidly narrower; 6th equal to the four preceding united, rather longer than wide, concave and emarginate behind, with two anal filaments equal in length to the segment itself.

"Legs short, front tibiæ somewhat thickened at tip; tarsi slender, rather shorter than tibiæ, apparently 4-jointed, 1st and 2nd joints short, 3rd equal to them united, 4th equal to the others united, claws rather long and slender.

"Body small, scaphiform, rounded in front, narrowed behind, convex, elongate, and shining. Head rather large; prothorax narrower in front, with deflexed angles, base truncate, not margined. Scutellum small. Elytra without striæ, slightly punctulate, broadly truncate at tip. Abdomen projecting somewhat behind the elytra, with three segments visible, conical, not margined at the sides.

"H. NATANS.—Oval, narrower behind, convex, black or brown, shining; head and prothorax nearly smooth, elytra sparsely and finely punctulate; antennæ and legs testaceous. Length, less than ·5 mm., = ·02 inch.*

"Found abundantly by Mr. Crotch at Los Angeles in the river. Mr. Crotch informs me that this very singular insect resembles in appearance some of the species of *Limnebius*. It greatly differs from that genus, as from all other *Hydrophilidæ*, by the laminate and widely separate hind coxæ, and by the peculiar abdomen. It seems to me another of the synthetic types gradually becoming known to us among the smaller and more obscure forms, connecting several different families of the Clavicorn series; in this instance, the *Hydrophilidæ*, *Scaphidiidæ*, and perhaps the *Trichopterygidæ*. In the accepted arrangement of *Coleoptera*, it must be considered as indicating a new family."—Leconte.

I have made a tolerably careful examination of the specimens of the above insect sent to me by its able describer. So far as I can follow his description, I am enabled to confirm it, with the exception of one or two points. I have convinced myself fully that the antennæ of the above described *H. natans* are eight-jointed, and the tarsi only three-jointed. Considering this latter point of importance, I have separated the legs, and examined them both in fluid and Canada balsam. I would therefore propose to supplement Leconte's description with the following remarks:

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* This is, of course, a misprint; the specimens sent by Dr. Leconte are about half a line in *length, = ·04 inch.—D. S.*

Antennæ 8-jointed, 1st joint much stouter and distinctly longer than the following one, 2nd joint slender at the base, slightly longer than the 3rd, joints 3—7 differing very little from one another, each just a little shorter and scarcely broader than the predecessor, the sutures separating the joints broad (or, in other words, the base of each joint accurately adapted to the extremity of the preceding one, so that the outline of the antennæ is scarcely at all notched), the suture between the 7th and 8th joints probably not admitting of motion, 8th joint elongate, rather longer than the 2nd, 3rd, and 4th joints together.

Mesosternum widely separating the middle coxæ, and similar in form to the same part in *Megasternum boletophagum*.

Front and middle tibiæ armed externally with stout spines.

Tarsi 3-jointed, 1st joint rather shorter than 2nd, 3rd fully as long as 1st and 2nd together (this is drawn from the middle and hind tarsi; the front tarsi are much shorter than the others).

Hind-body elongate and pointed, with the segments very retractile.

So much for the American insect.

Directly I looked at the specimens sent by Dr. Leconte, I saw they were closely allied to a minute species I captured some years ago in Spain, and I have accordingly compared the Spanish with the Californian examples, as well as with Dr. Leconte's description, and I find the two insects to be congeneric, and moreover, to be two closely allied species of the same genus. The following short characters will enable the European *Hydroscapha* to be identified.

HYDROSCAPHA CROTCHI, *sp. n.* — Pitchy-testaceous, shining, sub-depressed, legs and antennæ yellowish; head and thorax almost smooth, elytra very obscurely punctured, but the punctuation at their apical part distinct though very fine.

Length, less than half a line.

This insect is closely allied to *H. natans*, Lec., but is smaller, narrower, and very much more depressed.

It was captured by the late Mr. G. R. Crotch and myself in the pools of water by the side of the Manzanares in the suburbs of Madrid. During life, the hind-body is distended, but, except for this fact, the insect bears a singular resemblance to a minute species of *Limnebius*, in company with which it is found—the *Limnebius* being abundant, the *Hydroscapha* scarce. The *Limnebius* was sent by me to M. Pandellé some time ago, and was pronounced by him to be the *Limnebius evanescens* of Kiesenwetter. Kiesenwetter's description (Berl. Ent. Zeit., 1865, p. 375) of *L. evanescens* consists of only nine words, and they are not applicable to the *Limnebius* in question, though it is possible they might be intended to apply to the *Hydroscapha.* These facts suggest, therefore, the possibility that *Hydroscapha Crotchi* may have been hurriedly described as a *Limnebius.* Von Heyden (Berl. Ent. Zeit. 1870, Beiheft, p. 71) has supplemented Kiesenwetter's description of *L. evanescens* by a longer one; but it is still uncertain to me whether it is drawn from the *Hydroscapha* or a species of *Limnebius.* There is another species stated to be allied to *Limnebius evanescens,* viz., *Limnebius gyrinoides,* Aubé (Grenier, Cat. Mat., p. 127), from the South of France and Asia Minor, and it appears to me probable that the words in the description "extremité du corps depassant l'abdomen (*sic*) et terminés par deux petites raides en dessous," (*sic*) might likely enough, notwithstanding their absurdity, have been drawn from a *Hydroscapha.* Under these circumstances it is, at any rate, probable that the genus in the old world has a pretty wide distribution, and it is therefore premature to remark on the geographical distribution of the two species composing it.

I hope the Madrid entomologists will be able to give us information as to the habits of the *Hydroscapha Crotchi,* and particularly to inform us to what extent it is really aquatic in its habits.

As regards the affinities of the family, I shall not attempt to remark more than that I do not consider the points in which it approaches the *Hydrophilidæ* to be of great importance, and that it does not show any tendency to possess those characters which are most distinctive of and peculiar to the family *Hydrophilidæ.* On the other hand, I am inclined to think that its affinities with the *Trichopterygidæ* may be more important than Dr. Leconte has expressed: for the wings of *Hydroscapha* appear to me to show a decided approach to the peculiar structure of those organs in the *Trichopterygidæ.* I have forwarded a pair of *Hydroscapha Crotchi* and one specimen of *H. natans* to the Rev. A. Matthews, in hopes that his skill as a dissector of minute *Coleoptera* will enable him to give us a full description of the trophi; and I trust he will also inform us what his ideas are as to the affinities of the family with the *Trichopterygidæ.*

Thornhill, Dumfries:
September, 1874.

DESCRIPTIONS OF NEW SPECIES OF *LYCÆNIDÆ* FROM SOUTH AMERICA.

BY W. C. HEWITSON, F.L.S.

I am indebted for the insects described below to the generosity of Mr. Gervase Mathew, of the Royal Navy, who collected them during a cruise of H. M. S. "Repulse" in the Pacific.

THECLA SEDECIA.

Upper-side : ♂, anterior wing grey-brown, with a large dark brown discal spot; the space between it and the inner margin white. Posterior wing white, with two tails; the lobe rufous; two spots at the base of the tails and the outer margin black.

Under-side : white, with the basal half of both wings grey, bounded outwardly by a band of rufous-brown. Anterior wing with two sub-marginal series of pale brown spots. Posterior wing with one sub-marginal series of similar spots; the lobe black, the caudal spots as above.

Exp. $1\frac{3}{20}$ inch. Hab. Mexico.

This and the following species, though very distinct, have a general resemblance to *T. Daraba.*

THECLA CHONIDA.

Upper-side : ♂, grey-brown. Anterior wing with a large dark brown discal spot. Posterior wing with one tail; the anal half white, the lobe rufous; two black caudal spots, and the outer margin black.

Under-side : cinereous. Both wings crossed beyond the middle by a linear band of white, bordered inwardly by orange, and by a sub-marginal series of white spots. Posterior wing with the lobe and one caudal spot bordered above with orange.

Exp. $1\frac{1}{20}$ inch. Hab. Mexico.

THECLA CYBRIANA.

Upper-side : ♂, dull lilac-blue, the fringe rufous. Anterior wing with a small rufous discal spot. Posterior wing prolonged at the anal angle with one minute tail.

Under-side : rufous-brown, clouded with dark brown beyond the middle of the posterior wing. Anterior wing with a band in the cell, a band at the end of the cell bordered outwardly with white, and a spot near the apex all red-brown. Posterior wing crossed obliquely by three equidistant bands of the same colour.

Exp. $1\frac{4}{20}$ inch. Hab. Peru.

Nearly allied to *T. Palegon.*

THECLA CRITOLA.

Upper-side : ♂, ultramarine-blue. Anterior wing with a large black discal spot. Posterior wing with two tails.

Under-side: cinereous, undulated with brown to beyond the middle, bounded on the posterior wing by a series of pale orange spots, followed by a broad band of paler colour.

Exp. $\frac{19}{20}$ inch. Hab. Mexico.

Very unlike any other species.

THECLA MATHEWI.

Upper-side : ♂, anterior wing dark brown, with the inner margin cerulean-blue. Posterior wing with two tails, cerulean-blue, with the costal margin broadly brown.

Under-side: grey-brown, tinted with orange on the anterior wing. Both wings with a linear spot at the end of the cell; both crossed beyond the middle by a scarlet band bordered outwardly with white; the W of the posterior wing distinct; both wings with a sub-marginal brown band broken into spots, bordered with white on the posterior wing. Posterior wing with the lobe and caudal spot black, bordered above with scarlet.

Exp. 1 inch. Hab. Mexico.

I have named this species after its captor.

THECLA CYPHARA.

Upper-side : ♂, anterior wing dark brown with a rufous space at the anal angle. Posterior wing with two tails, rufous-orange, with the base and outer margin brown.

Under-side: ferruginous to beyond the middle, grey beyond it; both wings crossed by an orange band, bordered outwardly with white, both with a sub-marginal linear band of dark brown; the lobe and caudal spot black, bordered above with orange, below with white.

Exp. 1 inch. Hab. Panama.

Nearest to *T. Hugon.*

THECLA QUADRIMACULATA.

Upper-side : ♂, dark brown. Both wings with a large orange spot beyond the middle.

Under-side: cinereous. Both wings crossed by a band of dark brown spots, short, and near the apex of the anterior wing; central, and very irregular on the posterior wing; both wings with a sub-marginal series of dark brown spots. Anterior wing with the orange spot as above. Posterior wing with an indistinct yellow spot near the outer margin.

Exp. : ♂, $\frac{9}{10}$; ♀, 1$\frac{2}{10}$ inch. Hab. Chili.

LYCÆNA LYRNESSA.

Upper-side: ♂, cerulean-blue, with the outer margin black, the fringe alternately black and white.

Under-side: pale grey. Anterior wing orange, crossed beyond the middle by a band of five black spots, the costal and outer margins grey. Posterior wing marked by a large triangular brown spot with its apex towards the apex of the wing; two black spots near the base of the costal margin, and two or three near the anal angle.

Exp. $\frac{17}{20}$ inch. Hab. Chili.

Oatlands, Weybridge:
September, 1874.

NOTES ON BRITISH *TENTHREDINIDÆ*, WITH DESCRIPTION OF A NEW SPECIES OF *NEMATUS*.

BY P. CAMERON, JUN.

NEMATUS ALNIVORUS (Hartig).

I have long possessed a *Nematus* that I never could identify, and considered it to be undescribed. On sending a type to Dr. Van Vollenhoven for his opinion thereon, he informed me that this is actually the case: it being, however, the species mentioned by Hartig (Stett. Zeits., i, p. 27) under the name of *Nematus alnivorus*. As apparently no proper account of it has ever been published, I have drawn up the following description of the ♀, the only sex known to me.

Antennæ a little shorter than the body, black; the third joint slightly longer than the fourth, the remaining joints becoming gradually shorter. Head entirely black, shining, and minutely punctured; the mandibles reddish. The thorax and abdomen are entirely shining black; the tegulæ greyish-white; the sheath of the saw hairy. Wings scarcely hyaline, having a faint smoky hue in the centre; the nervures fuscous; the costa and stigma fuscous with a testaceous tinge. The first sub-marginal nervure is either absent or very faint; the second recurrent nervure is received a little in front of the second sub-marginal one; and the second sub-marginal cell has a minute black dot at its lower end. The feet are reddish, with the apical joints of the four anterior, and almost the whole of the posterior tarsi, as well as the apices of the posterior tibiæ, and the calcaria, black. The spurs are bifid.

Long. 2¾ lines.

It has a considerable resemblance to *Hemichroa luridiventris*, Fall., but it wants the white line on the pronotum, the tibiæ and trochanters are not whitish, and the wings are clearer, while the difference in the neuration of the wings at once distinguishes them. Herr Brischke has, in his "Abbildungen und Beschreibungen der Blattwespen-Larven," p. 12, doubtfully adopted the name of *alnivorus* for *H. luridiventris*.

N. alnivorus seems to be common in Scotland, appearing during May and June, in the vicinity of willows. Here it occurs at Cadder Wilderness and Possil Marsh, and I have likewise captured it in Strath Glass and Kintail.

CŒNONEURA DAHLBOMI, Thoms.

This season I have captured, in Cadder Wilderness, both sexes of *Cœnoneura Dahlbomi*, and, as Herr Thomson does not mention the ♂, it may be useful to point out its distinctive characters. The antennæ are fuscous or fuscous-black, with the two basal joints white; the thorax is bright testaceous above with two broad black bands on each side of the cenchri, and encircling them; the sides are black, intermixed with brown, and across the breast there is a black band. The abdomen is coloured like the thorax, with the exception that the colour is paler, and the dorsal surface has a varying number of broad black transverse bands, which, in some examples, are nearly joined together. The wings have the nervures much paler than in the other sex; those at the base of the wings, as well as the costa and stigma, are testaceous. In none of my specimens can I observe a trace of the first sub-marginal nervure.

The ♀ also varies in colouration, some examples being quite black, whilst others have the thoracic sutures, and the abdomen above and beneath, more or less reddish. All that I have seen have the antennæ quite black; but Thomson mentions that the basal joints are often pale. One of my specimens is only half the usual size. Altogether, it seems to be a very variable insect, and this variability evidently extends to its time of appearing, for it is met with during June, July, and August.

TAXONUS GLABRATUS, Fallén.

How and where the eggs are deposited by the female saw-fly I have not been able to discover, although, from the fact of having found larvæ that could not have been more than a day or two out of the egg, feeding close to the mid-rib on the under-side of the leaves of the food-plant, *Polygonum bistorta*, I suspect that they are laid there. The usual habit of the larva is to remain on the under-side of the leaf, with its body curled up in a ring, having the anal segments slightly elevated. In this position it eats either circular holes in the centre of the leaf, or feeds along its edges. Two broods occur in the year; the first during June and July, the second from August to the beginning of October, and this last generation appears to be the larger. In my breeding pots, the larvæ either passed into the pupa state exposed in the soil, or more usually bored into the cork of the bottle in which they were confined. In a state of nature it is their habit to bore into the stems of plants: they never, I believe, spin cocoons.

The larva has the upper part of the head brownish-black, divided at the top by a paler stripe (but some want this pale band, whilst others have the back portion also pale); the lower part is whitish-green, with a somewhat semi-circular fuscous or pale brown mark in the centre of the face; the mouth is deep brown; the mandibles darker. The black eyes are situated in the pale portion. The feet are glassy-white; the thoracic feet have the claws and the joints next to these pale brown. Each of the body segments (except the fifth) is provided with a pair of feet—twenty-two in all. The upper part of the body to the spiracles is dark drab-green, assuming a brighter tint when the creature is filled with food; the remainder is white. The body is of the ordinary *Tenthredo* type; the skin closely wrinkled. The usual length of the larva is about nine lines.

The pupa is bright glassy-green, with the wings, antennæ, and feet white.

In addition to describing *glabratus* (under the name of *Allantus agilis*, Kl.), Stephens gives another species of *Taxonus*—*T. rufipes*, Ziegler—which Mr. Smith also, in his Nomenclature of British Hymenoptera, adopts as a distinct species; but, from the description, I should say that it is merely *glabratus* without the bronzy tint, for otherwise there seems to be no difference between the two.

136, West Graham Street, Glasgow:
11th September, 1874.

British oak-galls.—In the Entomologists' Annual for 1872, Mr. Albert Müller gave twenty-two species of *Cynipidæ* as dependent upon the oak in Britain, all of which I have found in this neighbourhood, with the exception of *Biorhiza aptera, Trigonaspis megaptera,* and *Dryophanta longiventris.* Two of these species, viz.: *B. aptera* and *D. longiventris,* I have no doubt occur here, but I have at present failed to find them; as to *B. aptera,* I have had but little chance, not having met with any uprooted trees; *A. radicis,* the other root-gall of the oak, I have found rather commonly at the roots of hedge-stubs.

Since the publication of Mr. Müller's paper, four other species of oak *Cynipidæ* have been added to the British fauna, viz.: *Andricus quadrilineatus,* Hart., *A. amenti,* Gir., and *Spathogaster vesicatrix,* Schl., by Mr. Traill (E. M. M., x, 39 and 85); and *Aphilothrix solitaria,* Fonsc. (= *C. ferruginea,* Hart.), by Mr. Cameron (E. M. M., x, 85); of these I have found *A. quadrilineatus* here abundantly this spring.

I now add descriptions of four other species found here, one of which—*A. globuli*—has been recorded as British by myself in the Entomologist (vii, 24).

Dryocosmus cerriphilus, Gir.—I found a cluster of old fallen galls of this species at the root of an oak—*Q. pedunculata*—here on the 22nd of June last. Dr. Mayr says: "this rare gall is only found on *Q. cerris,*" and he, like myself, had only seen old galls, but it is well described by Giraud in his paper on galls (Verh. Zool. Bot. Gesell., ix, 354): his description is too long to be translated. I hope to find fresh galls and breed the insect, but have failed to find any more traces of it at present.

Dr. Giraud erected the new genus *Dryocosmus* for this insect, on the shape of the scutellum in the imago, which he only obtained by cutting them out of the galls, only breeding *Synergi* and *Chalcididæ* in the natural way.

Aphilothrix globuli, Hart. (N. E., vii, 24).—This is one of the bud-galls of the oak of which, I believe, we have several species in Britain. It is green; and, being found in the late autumn and winter, is easily seen in the terminal shoots contrasting with the brown twigs and bud scales. Bald, almost round, terminating at the apex in a small point, seated rather deeply in the bud, but falling to the ground when mature. The gall-fly appears in February according to Hartig, but, although I found the galls commonly, and collected many specimens, I failed to breed the *Aphilothrix*; probably the inner gall withered through being collected too early. I found the galls in the beginning and middle of December in the Hadleigh Woods near here.

Aphilothrix albopunctata, Schl.—It was on the 3rd of July this year that I first noticed some rather large bud-galls on the one-year-old twigs of *Q. pedunculata* stubs; these were the galls of *A. albopunctata*. They do not appear to occur on trees, as I have searched for them there repeatedly without success; some of the galls were empty as early as that date, their inmates, most probably parasites, having emerged. The galls are mostly dark green in colour, but some two or three were of a bright cream colour, probably bleached, of a conical shape, with slightly raised striæ from the apex to the base, and frosted with white spots in some specimens; they occur on the twigs, and are only surrounded just at the base by the small bud scales, so that they can easily be seen when looked for where they occur. I found two double specimens, otherwise the galls are monothalamous.

From fifteen galls I have bred thirty-two insects, all parasites, viz.: sixteen *Synergus facialis*, Hart. (seven ♂ and nine ♀), one *Pteromalus sp.?* six *Pteromalus sp.?* seven *Eurytoma squamea*, and two *Eupelmus urozonus*, Dlm. I have three galls which I hope contain the gall-maker, as Schlechtendal gives November as the month in which it appears; he also says the galls fall in May, but I found them on the twigs as late as the end of July. The parasites were named by Mr. Walker.

Aphilothrix callidoma, Hart.—When looking for more galls of the last species on the 27th of July, I found one gall of this, from which the imago emerged on the 3rd of August. I watched it cut its way through the side of the wall of the gall; it was about two hours from the time I first noticed it.

The gall is green, about as large as a barleycorn, spindle-shaped, and seated at the end of a rather long foot-stalk, pointed at the apex, and covered with a visible pubescence; in the species before me the pedicle is four lines long, the gall (which is monothalamous) three lines; the pedicle emanates from an aborted bud on a one-year-old twig. Giraud says the gall may be found throughout the summer and autumn. Mayr has only found it in the autumn, so I hope to obtain more specimens, but have not done so at present, although I have searched for some hours on the same stubs on which I obtained this one gall.—E. A. Fitch, Raleigh, Essex: *24th August, 1874.*

A further contribution to the Fauna of Lundy Island.—At p. 134 of vol. vi of the Ent. Mo. Mag. will be found a notice of 8 species added to the Coleopterous Fauna of this Island by myself during two days' excursions in August, 1870, the principal object of which was to collect _Hymenoptera_, so that all my captures of beetles were made on turning up stones in search of ants' nests. On the 22nd of August last, having for three weeks searched in vain for _Hymenoptera_ at and in the neighbourhood of Ilfracombe, I took advantage of an excursion to Lundy, which gave me about four hours for collecting, and these I devoted entirely to searching for _Coleoptera_.

Mr. T. V. Wollaston has published two lists of the _Coleoptera_ of the Island in the Zoologist, the first in 1845, the second in 1847; and the addition of the 8 above-mentioned species to the aggregate number (153) contained in these, increases the list to 161. I have now to add 22 further species, giving a total of 183.

Mr. Wollaston's researches were made during June and July, and my own in August, leaving nine months for further investigations, and the spring especially would, no doubt, produce many species not yet recorded in the lists.

In my remarks on the _Hymenoptera_ of Lundy Island, published in the Entomologist's Annual of 1870, I observed that it was the only locality I ever collected at without finding the hive-bee, and I also suggested that the Island was so barren and bleak that probably it could not exist there; since that time a cottager has imported hives, and the insect is now plentiful on the purple heath, and also on the flowers of the blackberry. I may also here record the discovery of two species of _Formicidæ_ not enumerated in my former list, namely, _Formica aliena_ and _F. cunicularia_.

Sweeping over a stubble field, I was greatly surprised at the immense number of grasshoppers, all apparently _Stenobothrus biguttatus_. Three species of _Homoptera_ also occurred in some abundance; these proved to be _Ptyelus bifasciatus_, _P. lineatus_ and _Evacanthus interruptus_, the latter being less numerous, but not uncommon. Only two butterflies attracted my notice, they being rather numerous, one was _Polyommatus Alexis_, the other _Chrysophanus phlœas_; but I also observed a small pale buff-coloured moth which darted out of the clumps of heath when I was beating for _Coleoptera_. Mr. Wollaston has only recorded two other lepidopterous insects, (_Cynthia cardui_ and _Hadena_ [_plebeia_] _dentina_). A Lepidopterist would, I have no doubt, have seen many other species; he must not, however, expect any long list of rarities, the Island being for the most part scanty of vegetation, and its entire area being only three miles and a-half, by little more that half-a-mile at the widest part.

The following is a list of all the species of _Coleoptera_ taken on this last occasion by me,—such of them (22 in number) as were first discovered by myself to be part of the Fauna of Lundy being distinguished by an asterisk. Eleven of these, marked †, are not recorded in Mr. Parfitt's catalogue of the _Coleoptera_ of Devonshire (though one of them, _Ceuthorhynchus quadridens_, is probably the insect from horse-radish, referred to therein as _C. quercicola_) :—*_Demetrias atricapillus_, _Dromius linearis_, *_Tachyporus brunneus_, *_Cercus rufilabris_, _Corticaria gibbosa_ and *†_Wollastoni_, *†_Meligethes lugubris_, *†_Apion radiolum_, *_æneum_, _carduorum_, *†_marchicum_, *_humile_, *_rufirostre_, and *_nigritarse_, *†_Tychius lineatulus_, *_Miccotrogus picirostris_, *†_Sibynes primitus_, _Cœliodes didymus_, †_Ceuthorhynchus assimilis_, _contractus_, and var. ? †_pallipes_, Crotch (I have compared this insect with typical _contractus_, and find that its elytra are not so rugose, being flatter between the striæ. I only took a single specimen, but have seen others; mine has the rostrum yellow before the insertion of the antennæ, with the tip black; all the legs are reddish-yellow, with black tarsi), *†*C. quadridens*, *Ceuthorhynchideus troglodytes*, **Crepidodera ferruginea*, **Phyllotreta atra*, **Thyamis lurida*, *†*exoleta*, and **melanocephala*, **Cryptocephalus minutus*, †*Psylliodes luridipennis*, Kutsch. (on wild cabbage: hitherto known to science only from this locality), **Coccinella* 11-*punctata*, *Scymnus limbatus*.—FREDK. SMITH, 27, Richmond Crescent, Islington: *September*, 1874.

Notes on beetles occurring in the Shetland Isles.—During a recent stay in Shetland, I met with several very interesting varieties of well-known species. The most remarkable was what appears to be a race of *Hydroporus griseostriatus*, smaller, flatter, and broader than the ordinary form, with the front of the thorax entirely pale. This insect occurred not uncommonly in one lake, from which it was difficult to obtain two specimens precisely identical. The markings of some few specimens were (with the exception noted above) identical with those of type *griseostriatus*, while in others the elytra were of a pale straw colour, with extremely faint indications of a few darker lines. Between the two all gradations occurred. In another lake, not very many miles distant, at a greater elevation, and farther north, the ordinary form of *griseostriatus* was in profusion, without any symptom of variation. No special reference to variation in this species is to be found in the ordinary European text-books, except the mention of the elytral lines being more or less widened; but I observe that the late Mr. G. R. Crotch in his "Revision of the Dytiscidæ of the United States" (Trans. Am. Ent. Soc., iv, p. 393) says "the variations in colour in this species have caused it to be described under various names;" and his localities, Canada, Lake Superior, California, give a further extension to its range of distribution, already reaching to Lapland and Unalaska. As there are already four synonymical names to *H. griseostriatus*, I do not venture to propose a new one for this Shetland form, however well marked, more particularly as I have the opinion of M. A. Preudhomme de Borre, of Brussels (who is a high authority on *Hydroporus*, and has kindly examined my specimens), that it is not specifically distinct from *griseostriatus*. I also met with *Hydroporus tristis* and *angustatus*, both conspicuously larger than the ordinary form,—the former evidently more, the latter evidently less, strongly punctured than usual. My assignment of these to the species mentioned has also been confirmed by M. de Borre.

Calathus mollis occurred of a uniformly dark fuscous colour (almost the same shade as *nubigena*). A very peculiar form of *Agabus guttatus* was strikingly narrower and flatter than the type, with the elytra much duller, and *A. maculatus* was in every stage up to almost entirely black. *Arpedium brachypterum* was smaller than usual and quite black, while a form of *Chrysomela staphylæa* occurred of a very short rotundate outline, much duller than usual, and, in some specimens, with the thorax less closely punctured. The occurrence on ground little, if at all, raised above the sea level, of such species as *Nebria Gyllenhalli*, *Pterostichus orinomus*, &c., is, I suppose, to be accounted for by the high latitude of Shetland. I was somewhat surprised to find the Isle of Wight *Trechus lapidosus* here. *Pelophila borealis* occurred in some numbers; and *Chrysomela sanguinolenta* was found under stones, unlike the southern *C. distinguenda*, which may generally be found on *Antirrhinum*.—THOS. BLACKBURN, Greenhithe: *September*, 1874.

Note on capture of Papilio Antimachus, &c.—I received yesterday from Mr. Rogers, at Fernando Po, a collection of butterflies, interesting chiefly from the large number and remarkable varieties of *Acræa*, which seemed to have its head quarters in that district. Mr. Rogers has at the same time sent me some new species from the Gaboon, with the following interesting account of his capture of *Papilio Antimachus* (the "magnus Apollo" of Lepidopterists):—

"I must now tell you about *Antimachus*. I took it on a small island on the "14th of March. I saw it on the 13th flying round a high tree where I was not "able to reach it. I watched it all day in the burning sun until quite exhausted. "I could not sleep all night. Next morning I landed on the island early. It was "pouring with rain. I watched round the tree, but saw nothing of it till about two "o'clock, when the sun shone out brightly, and in a few minutes it made its appear"ance again, but out of my reach. Suddenly the rain came down again, and *Anti"machus* flew towards me, and I took it with the first stroke of my net. I felt so "excited that I hardly knew what I did, and when I had pinned it in the box I "almost screamed with delight."

Mr. Rogers has sent me a second collection of butterflies from Fernando Po, containing *Papilio Merope* and *P. Hippocoon*, taken by him in copulation, another illustration of the saying that "truth is stranger than fiction." I find it very difficult (even with this evidence) to believe that a butterfly, which, when a resident in Madagascar, has a female the image of itself, should, in West Africa, have one without any resemblance to it at all.—W. C. Hewitson, Oatlands, Weybridge: 12*th August*, 1874.

Hermaphrodite Gonopteryx rhamni.—When collecting in east Sussex on the 16th instant, I caught a hermaphrodite specimen of *G. rhamni*.

The *left* wings are of the usual sulphur-yellow colour of the male insect, and the *right* wings are of the usual greenish-white colour of the female.

The specimen is in fine condition, and had apparently only recently emerged from the pupa.—H. Goss, Brighton: 20*th July*, 1874.

Natural History of Lycæna Adonis.—On 30th August, 1873, Mr. A. H. Jones most kindly sent me two living females of this species, which he had just captured at Folkestone. These I placed at once under gauze on a plant of *Hippocrepis comosa*, and, during the three or four days they remained alive, they laid about twenty eggs. The larvæ, I believe, hatched towards the end of September, but, as I kept them on the growing plant outdoors, I could not see them hatching: in October I found the leaflets of the vetch marked with little whitish dots; these were caused by the larvæ tunnelling into the under-side, and eating out the inner substance for a small space, leaving the upper skin untouched, which then turned white.

I kept their cage in a garden frame without bottom heat, but in a warm situation, and thus sheltered them through the winter, and on sunny days the larvæ could be seen enjoying the heat, stretched out—*if* that term may be applied to such diminutive, dumpy creatures—along the midrib on the upper-side of a leaflet. Up to December they remained less that one-sixteenth of an inch in length, but in January, 1874, some were grown to nearly one-twelfth of an inch, and were not only marking the leaflets with larger blotches, but were also beginning to nibble their edges.

About the middle of March I noticed they had increased somewhat in length, and considerably in stoutness, and that they were now eating the leaflets in the usual way; and by April 1st they were quite one-eighth of an inch long, and could eat a whole leaflet at a meal. Through this month they grew rapidly, the warm weather suiting them well, and they ate voraciously, till, by the 30th, several of the most advanced in growth had hidden themselves under the loose soil for pupation: after waiting eight or ten days, they changed, and finally the butterflies came out between June 2nd and 15th.

Mr. H. Terry of St. Mary's Church, Torquay, informs me that he finds the first flight of *Adonis* on the wing by May 20th, and the second about the middle of August; the two broods, therefore, taking respectively nine and three months out of the twelve to complete all their transformations.

The egg of *Adonis* resembles those of its congeners, being small, round and flattened in figure, the shell covered with raised reticulation, having prominent knobs at the angles; the central portion of the upper surface looks sunk, being covered with finer reticulation with no knobs; the colour is a light dull grey, the reticulation and knobs white.

The larva escapes through an irregular and rather large hole in the upper surface of the egg, and the empty egg-shell looks whitish; the young larva is pale whitish-green, soon becoming a full but dull green; all the warts furnished with hairs, which produce a downy appearance. During the winter months the green is replaced by reddish-brown, and again, in the early spring, the larva becomes pale purplish-brown, with the dorsal humps and the sub-spiracular ridge showing pale ochreous-brown; after a moult, about the end of March, the dull greenish hue comes back, the paler marks becoming yellowish, and the hairs black.

The full-grown larva is about five-eighths of an inch long, and a quarter-of-an-inch wide, onisciform, with the head small and retractile beneath the second segment; the segments deeply divided; there is a double dorsal row of eight humps on segments three to ten inclusive, enclosing a slightly hollow space, which is broadest on three, and thence tapers gradually to ten; the side spreads out to a rounded ridge running round the body, and hiding the legs from view when the larva is at rest; in colour, the head is very dark brown, the body is *deep, full green*, covered with tiny black specks bearing little *black bristles*, which are longest on the dorsal humps and sub-spiracular ridge; on the top of each of the eight pairs of dorsal humps is a deep bright yellow longitudinal dash somewhat wider behind than in front; these dashes form in effect two yellow stripes interrupted by the deeply-sunk segmental divisions; along the rounded edge of the sub-spiracular ridge is a stripe of bright and very deep yellow going all round, save a slight interruption on the sides of the second segment; on the second are two yellow dots just above the head, and above them again two small black spots; on the third there is a very faint yellowish dot half-way between the dorsal and sub-spiracular stripes; just above the feet is a row of yellow longitudinal dashes, brightest on the feet-bearing segments, and, in one example, these dashes were curved upwards, and united at the end of each segment to the yellow ridge above; in some specimens the ventral feet are also marked with yellow; the spiracles are conspicuous, being round and black; the pulsating dorsal vessel is rather deeper green that the ground-colour.

Some of my larvæ buried themselves about half-an-inch deep in the loose soil, and formed a weak sort of cocoon; others, not being supplied with soil that could be easily penetrated, retired under the stems of their food-plants, and in angles formed by the branching stems spun a few weak threads to keep themselves in place.

The pupa is barely half-an-inch long, dumpy in figure; the profile of the back swells out at the thorax, drops in again at the waist, and the abdomen slopes off in a curve to the rounded anal end; the ventral profile is much straighter, though still with a slight curve; the wing-cases reach more than two-thirds of the whole length, and the widest part is just where they end; the thorax and wing-cases are slightly glossy, the abdomen granulated; there are some very small hairs scattered all over; the colour is at first greenish on the wing-cases, greenish-brown on the rest of the body; afterwards ochreous all over, and finally turning very dark the day before the imago emerges.

On comparing the larvæ of *Adonis*, which I sent him, with figures of *Corydon* made some years ago, Mr. Buckler could detect no point of difference except a somewhat different tint in the green ground colour; this made us very anxious to see the larva of *Corydon* again, and our wish was very soon gratified in an unexpected manner. My friend had sent me a great many plants of *Hippocrepis comosa* for my larvæ, and upon one of these that had not been wanted for their use, I found, on June 8th, a half-grown *Lycæna* larva, which had evidently travelled to me out of Hampshire with its food: I had been told that *Corydon* and not *Adonis* occurred at the place whence the plants were procured, but this larva was so like those I had lately reared, that I was quite puzzled: luckily, Mr. Buckler and myself had just been comparing the notes we had made of *Adonis*, and so, seeing in this larva all that I had seen in *Adonis*, except that its bristles were brown instead of black, I sent it on to him at once, drawing his attention to a little point which I had wished him to notice in *Adonis*. Thus, with every incentive to exactness, he examined and figured it most carefully, finding nothing to notice but the tint of the ground colour and the hue of the hairs, and then kept it apart, waiting to see what the imago would prove to be, till on July 31st there appeared a fine *L. Corydon*.

As far, therefore, as our means of comparison have gone, our materials to work upon being some dozen and a-half larvæ of *Adonis* on the one hand, and this one larva of *Corydon* and figures of others taken in 1862 on the other, we can say that the two species resemble each other in the larval state in every particular of form and ornamentation except these two points: *Adonis* has its *ground colour deeper green*, with the *hairs* or *bristles black*, while *Corydon* has the *ground colour* of a *lighter, brighter green* (a green with more yellow in its composition), and the *hairs light brown*.

I have been thus minutely circumstantial in relating what was done by us because the result we have arrived at is not altogether in agreement with what we have been able to find already published. Thus in Stainton's Manual there are descriptions from Freyer, which, according to our observations, rightly distinguish between the *green* of *Corydon* and the *deep green* of *Adonis*, but err in making the number of yellow dorsal streaks different, for *Adonis* certainly has but eight in a row, and not twelve.

The only other author accessible to us, Boisduval, speaks of "le grand rapport "qu'il y a entre cette chenille (Corydon) et celle d'Adonis," and gives every point of figure and marking as identical, but goes on to say that *Adonis* " est d'un vert très "pâle un peu jaunâtre," and calls its "tubercules" not black but "bruns;" while *Corydon* "se distinguera toujours assez facilement au premier coup d'œil par sa "couleur d'un vert foncé, et par la petitesse de ses stigmates;" and this is directly contrary to what we saw in our examples, viz., the *deep green* in *Adonis*, and the *yellowish-green* in *Corydon*, and the spiracles of the same size and form in both.—J. Hellins, Exeter: *August* 11*th*, 1874.

Hybrids between Smerinthus ocellatus and S. populi.—Mr. Henry Stephenson, of this town, has just reared a good brood of the hybrid between *Smerinthus ocellatus* and *populi.* I have seen a large number of them on the setting boards, and very nice they are; the markings and colours of both species coming out very distinctly. Mr. Stephenson tells me the larvæ also equally partook of the characters of both species.—Geo. T. Porritt, Huddersfield: *September* 5*th*, 1874.

Capture of Noctua sobrina.—I had the pleasure of taking at sugar, while staying at Loch Rannoch this summer, two beautiful examples of *Noctua sobrina.* By a curious coincidence, they occurred upon the same tree, a small birch about the thickness of a man's arm. The fore-wings of the first specimen I captured have the red ground colour much suffused with grey; in the second they are of a purplish-rosy shade.—J. B. Blackburn, Grassmeade, Southfields, Wandsworth, S.W.: 31*st August*, 1874.

Description of the larva of Acidalia straminata.—For the opportunity of studying the history of this species, the larva of which, I believe, is hitherto undescribed, I am indebted to the kindness of Mr. G. B. Corbin, of Ringwood, who sent me eggs with the female moth on July 23rd of last year. The eggs are rather large for the size of the moth, oblong-square with the corners rounded, in colour reddish-brown,—deposited loose; they hatched on the 29th of the same month, and the newly emerged larvæ are long and slender,—in colour a very dark brown. They were fed on *Polygonum aviculare*, and grew slowly until autumn, when they hibernated, and re-commenced feeding early in March of this year. A great many of them died during winter and spring, and at the end of May I had only four left. These were nearly full-grown on the 18th of June, when I described them as follows:—

Length about an inch, and rather slender; head rather narrower than the second segment, and deeply notched on the crown; the body is rounded beneath, but rather flattened above, not so conspicuously, however, as in some other *Acidalia* larvæ; the second, third, and fourth segments are the narrowest, and are of about equal width; from the fourth they gradually become wider until the 10th, which is the widest segment, is reached; the eleventh, twelfth, and thirteenth are of about equal width, but narrower than the tenth. The segments overlap each other, rendering the divisions distinct, and, as in other species of the genus, each segment is conspicuously ribbed transversely; the skin has a tough appearance.

The ground colour of the dorsal surface is pale slaty-grey; the head is grey, with the sides and the notch dividing the lobes dark brown; medio-dorsal line very narrow and pale, edged on each side in the centre of the fifth, sixth, seventh, eighth, ninth, and tenth segments, with a narrow black streak,—on the other segments the black edging is continuous, but narrower and much less distinct. On the middle segments, between the medio-dorsal and sub-dorsal lines, is another series of very black streaks, and these, being situated nearer the sub-dorsal region than the edging of the dorsal line, give the dorsal surface a very pretty variegated appearance. The sub-dorsal lines are of a very indistinct pale slate colour; the spiracular lines are scarcely perceptible even with a lens. The ventral surface is of a uniform pale slate colour, with a very narrow indistinct paler central line, and equally indistinct transverse waved longitudinal lines.

This description applies to the two more strongly marked larvæ; in the others, the black markings on the dorsal surface were comparatively indistinct, in one shewing only as paler confused marks. When nearly ready for spinning up, I had two of them preserved; the others spun loose cocoons in a corner of the cage, and on the 21st July a ♀ imago emerged.—G. T. Porritt, Huddersfield: *July 11th*, 1874.

Crambus verellus at Folkestone.—On the 22nd ult., whilst collecting at Folkestone with Mr. C. A. Briggs, I captured a specimen of this insect, evidently fresh from the pupa, as the cilia, &c., were perfect. Subsequent searches failed to produce another specimen. —Walter P. Weston, 1, Duncan Terrace, Islington, N.: *21st September*, 1874.

Re-occurrence of Lemiodes pulveralis at Folkestone.—Having captured a specimen of *L. pulveralis* in the Warren, at Folkestone, about the beginning of August, I send you an account of it, hoping it may interest some of your readers.—H. Valentine Knaggs, 72, Kentish Town Road: *September*, 1874.

Coriscium Brongniardellum in Ireland.—A few days ago, Mr. P. Riall, of Bray, brought me some oak leaves, both common and evergreen, mined by a larva which Mr. Stainton has kindly identified as that of this species, not previously recorded as a native of Ireland. The mines were very abundant on both kinds of oak.—W. F. Kirby, Royal Dublin Society, Kildare Street, Dublin: *September 2nd*, 1874.

A further note about Aphelocheirus æstivalis (*ante* p. 92).—I have been out today in search of the winged form, but without success. I took in the course of an hour one hundred and two specimens, eighty full-grown, wingless, and twenty-two larval forms, the smallest of the latter a quarter-of-an-inch long in the body. They appear to be in the middle of the stream, among a broad-leaved species of *Potamogeton*, at least I got only one here and there along the edge of the stream. The place at which they abound is very contracted, not more than four or five yards in length; above and below that spot they turn up sparingly, but there, at one working of the net, I have had from six to fifteen.—James Landy Brown, Chapelfield, Norwich: *August 27th*, 1874.

British Hemiptera: correction.—*Deræocoris fornicatus*, Doug. & Scott, Brit. Hem., 329, sp. 11. From some specimens sent me by the late Mr. T. J. Bold, and taken, I believe, by Mr. Hardy on or in the neighbourhood of the Cheviots, I have been enabled to satisfy myself that the above insect is merely a northern form of *D. striatellus*. The series consisted of the reddish-yellow type form, with all intermediate varieties, one of which is in my possession. It will be necessary, therefore, to refer the name as a synonym to *D. striatellus*.—John Scott, 37, Manor Park, Lee: *September 16th*, 1874.

Captures of Hemiptera on the west coast of Scotland, with description of a new species.—I spent fourteen of the early days of August in this locality, and this record might well be headed "A search for *Hemiptera* in the Wet," for it rained more or less, or rather more than less every day, with a continual storm of wind.

About half-a-mile from Saltcoats begins a series of sand-hills which extends south-west to Troon—seven or eight miles. On these hills grows the Marram (*Psamma arenaria*), and the valleys are covered with grass, thyme, *Jasione montana*, *Galium verum*, &c., and in places with a dwarf sallow. I thought I had discovered a happy hunting ground like Deal, which the place entirely resembles:—

"But oh! the difference to me."

I have taken more insects at Deal in a quarter-of-an-hour than I saw here in a day. The "common objects of the shore" were absent—there was nothing *common*. I think that the dearth of insects in a place apparently so favourable for them is mainly caused by the fierce wind, which here seems to sweep for ever over the surface, so that nothing can abide. Deal, it is true, is affected by stormy winds, but they are gentle in comparison with those by which this coast is afflicted. The only thing worth a pin was *Nysius maculatus*, Fieb., found holding on among the herbage.

At Saltcoats under the shelter of a stone wall, among the roots of *Achillea millefolium*, I got two examples of *Acocephalus histrionicus;* and at the root of *Senecio Jacobæa* a single specimen of what I believe to be the macropterous form of *Athysanus sordidus;* also *Acocephalus polystolus*, Fieb.

At the Isle of Arran, in the lovely Glen Rosa, *Sphyrops ambulans* was abundant among ferns, and *Limotettix striola*, Fall., on rushes. I got one *Thamnotettix cruentata*, Panz., on heather; and one *Lygus rugicollis*, Fall., on sallow. On the margin of the "burn" that comes tumbling down the glen, I found *Salda saltatoria*, Linn., *S. littoralis*, Linn., and *S. stellata*, Curt.

At West Kilbride, in the avenue of Crosbie Castle, I got the rare macropterous form of *Bryocoris pteridis* on ferns; on the adjacent moors, *Acocephalus bifasciatus*, Linn., and *Agalliastes saltitans*, Fall. (1), among tall heather. *Ptyelus spumarius*, L., was common, but all the examples of this usually variable species were remarkable as being of one uniform pattern, and light brown colour. On a plant of Southernwood (*Artemisia Abrotanum*) growing in a shepherd's garden, I found the larva, pupa, and imago of a species of *Typhlocybidæ*, which I believe to be undescribed, and which may be briefly characterised as follows:—

EUPTERYX ABROTANI, *n. sp.*

Upper-side pale greenish-yellow. *Head* usually with two dark spots on the front, but sometimes immaculate. *Pronotum* sometimes with one or two brown spots on the sides. *Scutellum* black at the basal angles. *Elytra: corium* broadly pale exteriorly, inwardly, except at the base, with long, broad purplish-brown dashes extending to the apex; the nerves of the pale ground colour; *clavus* pale, usually with a brown central streak and one or two small brown spots. *Wings* diaphanous, iridescent; nerves black. *Legs* pale yellow. *Abdomen* black on the under-side; in the ♀, the last abdominal segment posteriorly, and the genital segments on each side of the middle, broadly pale yellow. Length, 1¼ line.

This species was first taken last year by the Rev. T. A. Marshall, on southernwood in his garden at Lastingham.—J. W. DOUGLAS, Lee: *Sept. 2nd*, 1874.

DESCRIPTION OF A NEW SPECIES OF *LIBURNIA* FROM BISKRA (ALGERIA).

BY JOHN SCOTT.

In the spring of this year, MM. Lethierry and Puton made a pilgrimage to Algeria in search of insects, as, I believe, they have done before, and great success seems to have attended their enterprise, as each succeeding journey has added novelties to the fauna. I can see no reason why the greater portion of the insects found on the extra European portion of the basin of the Mediterranean should not occur on the most southerly shores of our continent; climate and soil are identical, and similar localities are almost as numerous in the one as in the other. Greece and the Archipelago on the east, and Spain on the west, are comparatively unworked places, and Roumelia, and indeed the whole of the western shore of the Black Sea, may be placed in the same category.

I understand that Dr. Puton is engaged upon a new edition of his "Catalogue des Hémiptères Heteroptères d'Europe," which may be expected to be published before this year expires, and in it he contemplates adding a list of the insects of this order known to him to occur in the basin of the Mediterranean. This will be of infinite value to all those who are studying the European forms of *Hemiptera*, which course, I am sorry to say, is almost exclusively confined to continental naturalists. I may add that it was at the request of M. Lethierry, I have undertaken to write the description of the insect that follows, and that there are several other species in different genera, which he purposes describing himself.

Genus LIBURNIA, Stål.

(DELPHACINUS, Fieb.).

Species Liburnia Putoni, Lethierry (M.S.).

Head pentagonal (Section D, Scott in Ent. Mo. Mag., vol. vii, p. 29 (1870).

Undeveloped form, ♂. *Head, pronotum*, and *scutellum*, pale testaceous. *Elytra* black, with a broad, transverse, whitish, or pale testaceous-white band at the base. *Abdomen* black, with a narrow yellowish dorsal line.

Head—crown pale testaceous, keels acute, somewhat prominent; basal foveæ distinct. *Face* and *antennæ* pale testaceous, keels of the former somewhat acute and distinct. *Eyes* testaceous, exteriorly fuscous.

Thorax—pronotum and *scutellum* pale testaceous, shining. *Elytra* black, with a broad, transverse, whitish or pale testaceous-white band at the base; nerves distinct, not granulated; near each basal angle a pitchy-brown spot; entire marginal nerve testaceous; posterior margin straight, angles rounded. *Legs* pale fuscous-testaceous; *tibiæ* darkest; *tarsi* testaceous; apex of the third joint and *claws* brown.

Abdomen black, with a narrow yellowish dorsal line; sides with a yellow spot at the posterior angle of each segment; genital segment black; styloid processes somewhat billhook-shaped, the points above turned towards and touching each other.

Undeveloped form, ♀. Testaceous.

Abdomen above testaceous, with a fuscous shade, sides with two longitudinal, pitchy-brown lines interrupted at the anterior margin of each segment.

Length 1¼ line.

On the nerves of the elytra of the ♀ I possess, and also on others (but not all), in the collection of M. Lethierry, are some minute pitchy-brown or black granules, but these are so irregularly placed, and so different in position on each elytron, that I believe them to be accidental, and not characteristic of the species.

The only other insect I know referable to this section is our *L. mesomela;* the white head, pronotum, and elytra of which will at once distinguish it from the species now described.

37, Manor Park, Lee, S.E.:
September 1874.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

[*Revision of the genus* STRONGYLOCEPHALUS, *and description of a new species.*]

In the revision of the genus *Acocephalus*, Ent. Mo. Mag., vol. ix, p. 264, I refer to Flor's removal of the then only known species from the last named genus, on account of the very perceptible differences in the structure of the head alone, to that of his genus *Strongylocephalus*. At the time I then wrote, I had not seen a British exponent of *agrestis*, Fall., and it is only within the last few days that I have had this pleasure. The number of insects I have examined and supposed to be this species is very great. In each and every instance, they have proved to be the *Athysanus obscurellus*, Kirschb., an insect as unlike the true *S. agrestis* as any two insects could reasonably be. My friend the Rev. T. A. Marshall's description of *Acocephalus agrestis*, Ent. Mo. Mag., vol. ii, p. 197, will therefore require to be referred to *Athysanus obscurellus*, as also the insects representing it in his collection, which last he has kindly allowed me to have in my possession for many months. I had begun to think that the genus *Strongylocephalus* had no representative here; but some few months before the death of my friend Mr. T. J. Bold, he sent me two specimens of an insect which I could not determine from any description to be met with in books. After sending it to Dr. J. Sahlberg (who returned it without a name, or even a remark), I bethought me of Dr. Fieber's drawings and M. Lethierry, to whom I wrote, asking him to be good enough to let me see them for a single day; and, owing to his great kindness, I have been enabled to satisfy myself that Mr. Bold's species is no other than *Strongylocephalus Megerlei*, Fieb. This name, which I retain in respect to his memory, is only to be met with on the drawing and in his Catalogue of Cicadinen, published in 1872. I thereupon hastened to draw up a description, and had actually sent it to be printed, when, amongst some *Homoptera* collected by Mr. E. Saunders at Chobham, my eye fell upon the real "Simon Pure," the missing *S. agrestis*. I am now, therefore, able to describe the only two species at present known to be European. After studying the descriptions of *Amblycephalus irroratus*, Curtis, B. E., 572, n. 6, and *Phrynomorphus nitidus*, ♂, Curtis, Ent. Mag., i, 194, I believe they also only refer to *Athysanus obscurellus*, Kirschbaum.

Sub-Family *JASSINA*, Stål.

Genus STRONGYLOCEPHALUS, Flor.

Species 1.—Strongylocephalus agrestis, Fall.

Cicada agrestis, Fall., Hem. Suec. Cicad., 36, 18 (1826).

Acocephalus (Strongylocephalus) agrestis, Flor, Rhyn. Livl., ii, 210, 6 (1861).

♂. Dusky testaceous. *Elytra—corium:* nerves greyish, irregularly spotted with fuscous-brown; disc irregularly spotted with fuscous-brown; anterior marginal nerve interiorly with a frequently much interrupted fuscous-brown line, towards and round the apex, broken into three or four larger patches:

Head—crown dusky testaceous without a narrow black line just within the anterior margin; disc more or less thickly covered with minute curved and wavy lines and spots of fuscous-brown. *Face* dark fuscous-brown, thickly spotted with testaceous. *Clypeus* testaceous or yellowish, narrowly margined with fuscous-brown. *Cheeks* testaceous or yellowish, thickly spotted with fuscous-brown. *Antennæ* fuscous-brown, first joint white, second at the apex white; *setæ* fuscous-brown.

Thorax—pronotum dusky testaceous, finely wrinkled transversely, except next the anterior margin; disc thickly covered with very short streaks and fuscous-brown spots between the wrinkles. *Scutellum* dusky testaceous, with a few fuscous-brown spots next the base. *Elytra* dusky testaceous. Clavus: disc and nerves irregularly spotted with fuscous-brown; inner marginal nerve between the apex and the central nerve with a fuscous-brown streak interiorly. *Corium* dusky testaceous, nerves greyish, anterior marginal nerve interiorly with a fuscous-brown line, more or less interrupted and broken into spots; towards and round the apex three or four larger patches, and below the apex of the clavus one or two short streaks also fuscous-brown; inner nerves and disc irregularly spotted with fuscous-brown. *Legs* yellowish or brownish-yellow. *Thighs*: first and second pairs black for two-thirds their length from the base, or with longitudinal streaks; before the apex a narrow black ring; third more or less fuscous-brown or black. *Tibiæ* exteriorly of the first and second pairs alternately spotted with fuscous-brown or black and white; third exteriorly with a few black punctures, in which some of the yellowish spines are set. *Tarsi* fuscous-brown; base of the second and third joints narrowly yellowish-white.

Abdomen beneath black; external processes of the genital segments brownish-yellow, broad, rounded and recurved at the apex; upper margin black; exteriorly with several stout, erect, yellowish, or brownish-yellow hairs.

♀. Somewhat greyer throughout than the other sex; the markings larger and more pronounced, whilst frequently some of the cells are entirely fuscous-brown, or sparingly spotted with minute yellowish-grey spots.

Length, ♂, 2¼; ♀, 2⅓ lines.

Differs from the next species in the absence of the dark line next the anterior margin of the crown; the paler and much more spotted face, the grey nerves of the corium, and the dark brown margins to the cells of the same. Three examples (one ♂, two ♀) taken by Mr. E. Saunders, at Chobham, in August, by sweeping in a damp place amongst some osiers.

Species 2.—STRONGYLOCEPHALUS MEGERLEI, Fieb. (M.S.).

Dark testaceous. *Elytra*: nerves more or less broadly and irregularly margined with dark brown; round the apex four or five, generally the latter, dark brown patches. *Legs* somewhat brownish-testaceous. *Thighs*: first and second pairs with a black ring before the apex. *Tibiæ*: first and second pairs on the anterior margin and sides with irregular black spots.

Head—crown somewhat brownish-testaceous, with a narrow black line extending from eye to eye, just within, and running parallel with, the anterior margin. *Face* black, the lower half more or less thickly covered with minute yellowish-brown spots occasionally confluent; lower margin narrowly yellowish-brown. *Clypeus* black, with a few yellowish-brown spots. *Cheeks* yellowish-brown, with several short black irregular streaks or spots. *Antennæ* pitchy-brown; apex of the second joint brownish-yellow; *setæ* pitchy-brown.

Thorax—pronotum somewhat brownish-testaceous, posteriorly finely wrinkled transversely, and faintly sprinkled with a few black atoms. *Scutellum* somewhat brownish-testaceous, with a small triangular black spot near each basal angle. *Elytra* dark testaceous, sides of the nerves thickly but irregularly punctured, giving to the disc a finely crenate appearance. *Clavus:* nerves very finely margined with dark brown, frequently interrupted at irregular intervals; apex of the dorsal suture with a short dark brown streak, and apex of the central nerve with a somewhat triangular spot of the same colour. *Corium:* nerves margined with dark brown, in some portions very finely or almost obsolete, in others more broadly and irregularly; immediately within the anterior margin, several short dark brown spots or short streaks, more or less joined, and more or less distinct, terminating in a larger elongate patch, almost in a line with the transverse nerve at the base of the ante-apical area, below the latter patch is another somewhat shorter and broader; round the apex, three others generally joined interiorly, and forming a somewhat M-shaped character, and a short streak below the apex of the clavus; interior and exterior cubital nerve, next the apex, generally dark brown; all the other nerves, more especially towards the apex, spotted with dark brown. *Sternum* black. *Legs* brownish-testaceous. *Thighs:* first and second pairs black, apex, and a ring before the latter, brownish-testaceous; third black, upper and lower margins somewhat brownish. *Tibiæ* brownish-testaceous, apex and a few spots down the anterior margin of the first and second pairs, black; third brown, anterior margin spotted with black, in which the brown spines are set, apex black. *Tarsi* brownish-testaceous; apex of the first and third joints broadly black, second brown.

Abdomen above black; side margins narrowly brownish; posterior margin of the segments very narrowly yellowish; beneath black, sides brownish-testaceous; posterior margin of the last segment in the middle testaceous; last genital segment black; external processes broad, brown, somewhat piceous towards the apex, and with two rows of very fine punctures down the middle and almost touching each other.

Length 2¼ lines.

I have only seen two specimens, both ♂, which were sent to me for determination by the late Mr. T. J. Bold, who kindly presented me with one of them.

Manor Park, Lee, S.E.
September, 1874.

DESCRIPTION OF TWO NEW GENERA OF *SCARABÆIDÆ*.

BY D. SHARP, M.B.

The two genera here characterized are of considerable interest, owing to the structure of the ventral portion of the hind-body. Were it not for a peculiarity in this respect, they would take their place in the group of the *Aphodiides*, in the neighbourhood of *Ægialia*. But the structure of the part alluded to is quite that of the Trogides; and

I think it will therefore be advisable to consider them as forming a small separate group, to be placed near the *Aphodiides*. Though the structure of the hind-body appears to be so like that of *Trox*, in their other characters these insects do not show any considerable approach to the *Trogides*. The genus *Eremazus* of Mulsant belongs, I have little doubt, to this group, which may be called *Tolisides*, if it be considered necessary to give it a special name. Though Mulsant does not speak of the structure of the hind-body, he placed his genus in the *Trogides*. Lacordaire, to whom this genus of Mulsant was unknown, placed it with doubt in the *Aphodiides*, calling attention, however, to Mulsant's silence as to the structure of the hind-body. It is also worth while noticing that Fairmaire has described (Ann. Soc. Ent. Fr., 1870, p. 374) an insect under the name of *Ægialia Marmottani*, which I feel pretty certain is a member of the group *Tolisides*. Fairmaire tells us that he did not dare to take off its card the single example known of his *Æ. Marmottani;* but the characters he mentions to distinguish it, viz., the invisible eyes, the unstriated elytra, and the Trachyscelid facies, leave no doubt in my mind that it is a member of the group here established. *Ægialia Marmottani* was found at Biskra in Algeria; and it is highly probable that it is synonymous with *Eremazus unistriatus*, Muls.

MILLINGENIA, *n. gen.*

Antennæ small, eight-jointed, 1st joint stout, oval (much narrower just above the base than at the extremity), its length not quite twice its width, 2nd joint stout, quite twice as broad as the following joints, joints 3, 4 and 5 small, the 5th shorter and scarcely broader than the 4th, closely applied to and not very distinct from the base of the 6th joint, joints 6—8 forming a comparatively large oval club, the sutures of which are transverse.

Mandibles short but very thick, outwardly rounded, the inner margin forming three or four stout teeth.

Maxillæ with both lobes distinct, the inner one small, apparently horny, and divided into three or four short finger-like lobes. The upper lobe membranous, armed on the inner side with six or seven pointed spinulæ, furnished outwardly with a long, fine pubescence. Maxillary palpi long, four-jointed, the terminal joint elongate-oval, longer than the two preceding joints together.

Mentum rounded at the extremity and emarginate in the middle, *ligula* entirely concealed; *labial palpi* three-jointed, 1st joint slender, cylindric, moderately long, 2nd joint sub-triangular, about as long as broad, 3rd joint oval (or rather pear-shaped), longer than the 2nd joint.

Labrum transverse, the front margin slightly emarginate in the middle, but covered with a dense pubescence, which projects much beyond the labrum and prevents its form being seen.

Head small, the clypeus very short, in the middle with a prominent small notched process, which projects over the labrum, but which cannot be seen without dissection, on account of the hairs with which the front margin is fringed, the mandibles exposed; eyes small, placed at the lower part of side of the head, and not at all visible from above.

Prosternum very short. *Mesosternum* rather large, separating the middle coxæ by only a thin lamina; middle coxal cavities elongate, obliquely transverse. *Metasternum* moderately long.

Hind-body composed of five ventral horny segments, of which the basal one is visible only at the sides and in the middle as a small process projecting between the hind coxæ: on dissecting off the hind-body, however, the existence of a sixth segment is found to be indicated, by a very small upright process (just as in the genus *Trox*) placed in front of the process mentioned above as forming the middle of the basal segment; 2nd, 3rd, and 4th segments rather short, about equal to one another, 5th segment comparatively long, about as long as the two preceding segments together.

Legs short, and very robust, the front tibiæ tridentate, the two lower teeth very long and pointed; the hind tibiæ very broad, on the outside with two very deep notches; their apical spurs pointed, not dilated; the middle tibiæ similar to the hind ones, but not so stout. All the tarsi 5-jointed, the hinder ones with the joints broad and flattened, the basal joint about as long as the three following together, the last joint terminated by a single short unguiculus.

The insect is of convex form, and its facies is a good deal that of *Ægialia globosa.*

MILLINGENIA FOSSOR, *n. sp.*

Transversim valde convexa, fulva, suprà (marginibus exceptis) nuda, subtùs sat dense longius ciliata; capite ruguloso-punctato; prothorace fortiter transverso, æquali, crebre punctato; scutello parvo, lævi; elytris crebre punctatis, estriatis, sed sulci humeralis obsoleti indicationibus. Long. corp. 4½ mm.; lat. 2 mm.

This interesting insect was captured by Dr. Millingen, in Lower Egypt: probably in the neighbourhood of Cairo. I have had much pleasure in naming this important genus in his honour, our collections in this country having been enriched by him with many interesting and novel species from the East.

TOLISUS, *n. gen.*

This genus is closely allied to *Millingenia*, but its facies is rather that of *Aphodius* than *Ægialia*, and it differs by its larger eyes, which, however, are concealed under the front angles of the thorax, and by its tarsi being furnished with two unguiculi. As minor characters, I may mention that *Tolisus* has the metasternum and the apical segment of the hind-body remarkably elongate, the metasternum, moreover, is provided near its hind margin on each side with a curved impression to adapt it to the femora; and the front tibiæ have also one or more additional small teeth on the upper part. I have not dissected the mouth, but do not think from what I can see of its parts that they would present any important difference from *Millingenia.*

TOLISUS ÆNEUS, *n. sp.*

Livide-testaceus, suprà æneus, nitidus (marginibus exceptis) nudus, subtùs longius minus dense ciliatus; pedibus rufescentibus; capite crebre ruguloso-punctato; thorace transverso, cum elytris sparsim punctatis, præter punctos majores punctis minutis adspersis; elytris sulco post-humerali obsoleto. Long. corp. 4 *mm.*

I have received two individuals of this species taken by Dr. Millingen at Jeddah, and I have a third specimen from Western Syria which I believe to belong to the same species, though it is a little smaller, and has the upper tooth of the front tibiæ smaller than in the Arabian individuals.

TOLISUS MINOR, *n. sp.*

T. æneo simillimus sed paulo minor, cumque mandibulis minus validis haud adeo porrectis. Long. corp. 3⅓ *mm.*

I have only a single specimen of this species; it was brought from Ajmere, North-Western India, by Mr. Crowder.

Thornhill, Dumfries:
October 25*th*, 1874.

DESCRIPTION OF A NEW SPECIES OF HETEROMEROUS *COLEOPTERA* BELONGING TO THE GENUS *TOXICUM.*

BY CHAS. O. WATERHOUSE.

TOXICUM TRICORNUTUM, *sp. n.*

Elongatum, cylindricum, atrum. Capite plano crebre punctulato. Thorace convexiusculo, longitudine paululo latiori, irregulariter discrete punctato, antice leviter emarginato, postice bisinuato, angulis anticis obtusis, lateribus rectis parallelis, angulis posticis acutiusculis. Scutello parvo, semicirculari, punctulato, piceo. Elytris thorace paulo latioribus, triplo longioribus, parallelis, ad apicem arcuato-acuminatis, sat fortiter striatis, striis sat crebre fortiter punctatis, interstitiis leviter convexis obsolete subtilissime punctulatis. Corpore subtus nigro-piceo, nitido. Ore antennis pedibusque piceis.

Long. 5¾—8 *lin., lat.* 2—2¾ *lin.*

Mas: Clypeo cornu brevi erecto ad apicem dilatato et emarginato. Fronte supra oculos auriculis duobus brevibus acutis divaricatis, intus longe fulvo-pilosis, instructa.

Fem.: Clypeo in medio convexo. Fronte utrinque supra oculos carinata.

Hab.: Japan, Yokohama. Coll. Brit. Mus.

British Museum: October 13*th,* 1874.

ON A NEW GENUS OF LONGICORN BEETLES FROM AUSTRALIA.

BY CHAS. O. WATERHOUSE.

CERAMBYCIDÆ (*Phoracanthides*).

DEMELIUS, *gen. nov.*

Palpi short, stout, with the apical joint truncate. Head short, very slightly convex between the antennæ, longitudinally canaliculate. Antennæ nearly reaching to the apex of the elytra, rather stout, pubescent; the basal joint sub-cylindrical; the second shorter than broad; the third and fourth joints scarcely as long as the first, with a strong spine at the apex on the inner side; the fifth, sixth, and seventh as long as the first, more slender than the preceding, distinctly spined at the apex; the eighth to tenth becoming shorter and more slender, with scarcely any trace of apical spine; the eleventh joint flattened. The eyes well separated above, the lower lobe projecting to the front of the antennal orbit. Thorax transverse, narrowest behind, with two tubercular processes on each side, and two on the disc. Scutellum triangular, equilateral. Elytra convex, parallel, truncate at the apex, each furnished with two distinct spines. Legs long; anterior coxæ nearly globular; the femora sub-linear, unarmed; posterior tarsi with the basal joint as long as the two following together. Prosternal process narrow, arched. Mesosternal process moderately broad, arched. Body, above and below, in parts thickly clothed with pubescence. Allied to *Orion*.

DEMELIUS SEMIRUGOSUS, *sp. n.*

Nigro-piceus; capite thoraceque suprà dense albo-pubescentibus, hoc quadrinodoso postice utrinque fusco-maculato. Scutello medio albo. Elytris thorace vix latioribus sed quadruplo longioribus, sat convexis, apicem versus rotundato-angustatis, ad apicem truncatis, quadri-spinosis, suturâ lineisque sex fusco-pubescentibus, pone medium fasciis duabus irregularibus albo-pubescentibus; basi fortiter dense punctatis, apice sublævibus. Antennis pedibusque dense griseo-fusco-pubescentibus; femoribus in medio fere nudis, albo-annulatis. Corpore subtus fusco-pubescenti, griseo-albo-maculato. *Long.* 14½ *lin., lat.* 5¼ *lin.*

I need only add to the above description that the three basal joints of the antennæ are much less densely clothed with pubescence than the following. The thorax is furnished on each side with two somewhat acute processes, the posterior one being the more prominent; behind this the thorax becomes narrower, being at the base not broader than the head; the disc has four nodules, of which two are situated near the front, and are somewhat acute; the posterior pair are wider apart, elongate and oblique. The basal half of the elytra is very strongly punctured; about the shoulders the punctures are honeycombed. There is a white spot below the shoulders on the margin.

Hab.: Queensland. Coll. Brit. Mus.

British Museum: *September 14th*, 1874.

DESCRIPTION OF A NEW SPECIES OF *APION* FROM THE SHETLAND ISLES.

BY THE REV. T. BLACKBURN, B.A.

Apion Ryei, *n. s.*

Oblongum, nigrum, nitidum; rostro arcuato, thorace longiore, femince longiore quam maris, medio dilatato, punctato; antennis brevibus, articulo primo basi testaceo; femoribus (apice excepto) tibiisque anticis flavis; thorace brevi, lato, lateribus rotundatis, parce profunde punctato; elytris fortiter punctato-striatis, interstitiis vix elevatis.

Long. corp. 1¼—1⅓ *lin.*

This species is separated from all the rest in the group with the femora and anterior tibiæ alone yellow, by its short broad sparingly punctured thorax (which is scarcely, if at all, longer than broad) the sides of which are very evidently rounded. Its rostrum is as strongly arched as in *ononidis*, from which, however, besides the thoracic and other characters, its short dark antennæ (resembling those of *assimile*) distinguish it. It appears to me most nearly allied to *fagi*, from which it differs (besides the thoracic characters) by its shorter rostrum and antennæ, the greater arcuation of the former, and the darker base of the latter. Its larger size, apart from thoracic and other differences, at once removes it from *assimile* and *trifolii*.

I have examined the European collection at the British Museum, and descriptions of all European species of *Apion* I could ascertain to have been described in the yellow-legged group, without finding anything like this insect. I should have wished to forward it to M. Wencker, as the highest authority on the genus, before taking any further step, but his untimely decease has prevented my doing so. Under the circumstances, I think I am justified as describing it as new. I dedicate it, as a tribute of respect, to my friend Mr. E. C. Rye.

This insect was obtained, first by my friend Mr. C. E. Lilley, and subsequently by myself, by promiscuous sweeping in the Shetland Islands, last July. Unfortunately, I mistook it at the time for *fagi*, and did not give particular attention to its food-plant.

Greenhithe: *October*, 1874.

DESCRIPTION OF A NEW SPECIES OF *ERIOCAMPA* FROM SCOTLAND; WITH NOTE ON A VARIETY OF *TAXONUS EQUISETI*, FALL.

BY P. CAMERON, JUN.

Eriocampa testaceipes, *sp. n.*

E. nigra, nitida, genubus, tibiis, tarsisque testaceis; alis subfumatis. *Long. corp.* 2 *lin.*; *exp. alar.* 5 *lin.*

♂. Antennæ black, a little longer than the abdomen. Head black, shining. Thorax black, shining; cenchri large, dull grey. Abdomen black. Wings slightly longer than is usual in the genus; scarcely hyaline, having a smoky tinge; costa and stigma black. The marginal nervure is received nearly into the middle of the third sub-marginal cell; and it is more perpendicular than in the other species: the cell structure of the posterior wings is the same as in *E. Cinxia*. Feet with the femora black, except at the apices, which, with the tibiæ and tarsi, are testaceous; posterior tarsi fuscous.

The colouration of the legs at once distinguishes *E. testaceipes* from the other European species of *Eriocampa*. It seems to be most nearly related to *E. Cinxia*.

I captured one example on alder growing close to the Church at Kilmorack, near Beauly, on 6th June last.

TAXONUS EQUISETI, *Fall.*

In Scotland there occurs a variety of *Taxonus equiseti*, Fall. (*bicolor*, Kl.), which differs from the type in having only a somewhat triangular blotch (broadest at the posterior part of the segment) instead of the whole of the third abdominal segment red. This variety (which embraces both sexes) is tolerably constant, and is interesting as shewing that *Taxonus coxalis*, Kl., must be regarded as a variety of *equiseti*; for it does not differ from the latter, except in the fact that it has two instead of three abdominal segments red; and the Scotch form with its two and a half segments red, forms a link between the other two. Furthermore, I possess a specimen of *equiseti* with four segments red, and with, moreover, the stigma white at the base; so that it looks as if *T. sticticus* were also a variety. *T. equiseti* has sometimes the labrum black.

136, West Graham Street, Glasgow:
October, 1874.

DESCRIPTION OF A NEW *PAPILIO* FROM MADAGASCAR.

BY W. L. DISTANT.

PAPILIO LORMIERI, *sp. nov.*

Wings above black, fringes spotted with pale sulphur-yellow; front wings with discoidal cell streaked with four parallel lines of yellowish-grey; a spot on lower discocellular, a straight, oblique, transverse series of nine pale yellow oval spots, the two nearest to costa only divided by third sub-costal branch; between the fifth to ninth spots four milky pyriform patches; a sub-marginal series of eight small pale yellow spots; hind wings crossed at the middle by a transverse pale yellow irregular band; a large black spot on abdominal area, margined inwardly with blue scales and outwardly by a reddish-orange lunule, a more obscure spot similarly margined on apex; from the abdominal spot to second sub-costal branch an irregular line of golden scales interrupted on each interspace by a blue spot; a sub-marginal series of five pale yellow spots; a semi-circular spot of the same colour on each side of the tail; body above dark brown; palpi pale yellow; wings below nearly as in *Papilio Menestheus*, but the discal series of spots in front wings straight; body below pale yellow; abdomen with two ventral parallel lines of black.

Expanse of wings, about 5 inches 2 lines.

Captured by the late Mr. L. Lormier. Habitat: Madagascar.

Note.—The species figured by Mr. Trimen as *Papilio Menestheus* appears not to be typical.

Streatham Cottage, Buccleuch Road,
West Dulwich, S.E.:
October, 1874.

DESCRIPTIONS OF FIVE NEW SPECIES OF *ACRÆA* FROM WEST AFRICA.

BY W. C. HEWITSON, F.L.S.

Acræa Vinidia, *sp. n.*

Upper-side: dark brown. Anterior wing with a spot near the apex, and a broad band below it to the middle of the inner margin, marked (not always) by a black spot, both rufous-orange. Posterior wing scarlet with the base and outer margin dark brown; a small black spot on the middle of the costal margin.

Under-side: rufous. Both wings with the outer margin rufous-brown marked by a series of pyramidal spots. Anterior wing with a spot in the cell, a band at the end of the cell, and two small spots below these, all black; the sub-apical spot of the upper-side nearly white. Posterior wing with fifteen small black spots between the base and the middle; two of them near the base, two near the costal margin, two in the cell, two beyond these and seven between them and the inner margin.

Exp. $1\frac{8}{10}$ inch.

Hab. Angola.

Near *A. Eponina;* its chief difference being the arrangement of the basal black spots which are here spread over half the wing, and in *Eponina* crowded together near the base.

Acræa Orina, *sp. n.*

Upper-side: ♂, dark brown. Anterior wing with the cell scarlet; a band of six spots, three of which nearest the apex—sometimes dull white, sometimes rufous,—are at an angle with the other three, which are scarlet, and placed between the branches of the median nervure, the last forming a band near and parallel to the inner margin. Posterior wing scarlet with several spots crowded together near the base, and the outer margin all black.

Under-side: ochreous-yellow. Both wings with the nervures as they approach the outer margin and lines between them dark brown. Anterior wing with the brown as above, but paler. Posterior wing with four spots near the base, an oblique band of four spots and a central band of eleven spots, three of which are near the costal margin and four (minute) at the end of the cell.

Exp. $2\frac{3}{10}$ inch.

Hab. Fernando Po (Rogers).

No dependance can be placed upon the number of spots near the base of the posterior wing. The specimen I have described has nineteen spots, another has only thirteen, two or three spots being sometimes united into one.

ACRÆA ORETA, *sp. n.*

Upper-side: ♂, dark brown. Anterior wing with the cell (where it is marked by two black spots), a band parallel and near to the inner margin, and an oblong spot between the first and second median nervules, and two small spots below these, all scarlet; an oblique band of three white spots beyond the middle. Posterior wing scarlet with several spots near the base, a band of spots at the middle and the outer margin, which is finely indented inwardly, all black.

Under-side: ochreous-yellow. Both wings with the nervures near the outer margin and lines between them brown. Anterior wing with a central spot of brown. Posterior wing with four spots at the base, an oblique band of five spots, three spots, one minute, in the cell, and a central transverse band of eight spots, all black.

Exp. $2\frac{1}{10}$ inch.

Hab. Fernando Po (Rogers).

ACRÆA OPPIDIA, *sp. n.*

Upper-side: dark brown. Anterior wing with an indistinct rufous band parallel and near to the inner margin; two central spots of the same colour (one in the cell), an oblique trifid white spot beyond the middle. Posterior wing brick-red, with the base, which is marked by three or four black spots, and the outer margin, dark brown.

Under-side: ochreous-yellow. Both wings with the nervures near the outer margin and lines between them dark brown. Anterior wing clouded with brown from the base to the middle. Posterior wing marked near the base by sixteen black spots, four of them near the base, two oblique bands of four each, three spots near the costal margin and a minute spot near the middle.

Exp. $2\frac{1}{10}$ inch.

Hab. Fernando Po (Rogers).

ACRÆA ORESTIA, *sp. n.*

Upper-side: ♂, anterior wing transparent, clouded with brown, chiefly at the base and outer margins, the nervures black. Posterior wing rufous-orange, with some black spots near the base and inner margin (better to describe from below), and a circular series of seven spots of the same colour at the middle; the outer margin dark brown, dentated inwardly.

Under-side: as above, except that neither of the wings is margined with brown. Posterior wing with three spots at the base, an oblique band of four spots, a spot on the costal margin and a larger spot in the cell, all black.

Exp. 1$\frac{6}{10}$ inch.

Hab. Fernando Po (Rogers).

Near to *A. Cerasa* as well as to *Quirina.*

Oatlands, Weybridge:
October, 1874.

NOTES ON BRITISH *TORTRICES.*

BY C. G. BARRETT.

(*continued from p.* 62).

Phtheochroa rugosana, Hübn.—The larva of this species does not appear to have been noticed in this country. Its habit of feeding in the unripe berries of *Bryonia dioica,* and spinning up on the stem, is recorded by the late Senator von Heyden in the Stettin. ent. Zeitung, and translated in the Entom. Annual for 1867 by Mr. Stainton. M. Millière (Icon. iii, p. 334) states that it feeds also upon *Ecbalium elaterium* (not a British plant).

Eriopsela fractifasciana, Haw.—According to M. Jourdheuille's Calendar, the larva of this species feeds in heads of Scabious in dry fields.

Eriopsela quadrana, Hübn.—Continental specimens of this and the preceding species are larger than ours. Professor Zeller tells me that in Switzerland *E. quadrana* flies in June and July, but in Germany in May, as with us.

Chrosis tesserana, Tr. (Schiff.).—Dr. Wocke has had the misfortune to discover an earlier name for this species in "Der Naturforscher"—*Alcella,* Schultze (1776). The beautiful variations in colour which it frequently assumes in this country seem to be unknown in Germany.

Chrosis Audouinana, Dup.—This also Dr. Wocke corrects to *bifasciana,* Hübn., undoubtedly an earlier name. He places it in the genus *Heterognomon* (a sub-division of *Tortrix*), with *viridana, Bergmanniana, Conwayana,* &c.

Argyrolepia æneana, Hübn.—In addition to Wilkinson's localities, this has occurred, but not commonly, at Haslemere in the south of Surrey.

Argyrolepia Schrebersiana, Fröl.—In Germany, Prof. Zeller tells me, this species is found commonly on *elm*, and M. Jourdheuille says "larva under bark of large poplars and elms." But, as far as can be ascertained, all the specimens obtained in this country have been from the fens of Huntingdonshire and Cambridgeshire, where they must surely find some other food.

Argyrolepia Mussehliana, Tr.—This species is very closely allied to *Eupœcilia Geyeriana* and *vectisana*, and may possibly be found in collections under the latter of these names or that of *griseana*. I have an old specimen which was sent me many years ago under one of these names, and three more exist in Mr. Douglas's Collection, but their localities cannot now be traced. Besides Mr. Doubleday's two specimens taken by Weaver in Devonshire, these are the only British examples that have come under my notice.

Dr. Wocke sinks *vectisana*, Wilk., into a synonym of these species, but the two species, although allied, are certainly distinct. *Mussehliana* seems out of place in the genus *Argyrolepia*, and should be included in *Eupœcilia* with its allies; but German authors ignore both genera, placing the whole of their species, with those contained in *Chrosis*, *Lozopera*, *Xanthosetia*, *Dapsilia*, and *Argyridia*, in the genus *Cochylis*, Tr.; and in Wocke's List these genera do not even form separate sections of that genus, but are mixed together in a wonderful manner. In the case of very rare insects like this and the preceding, it is exceedingly difficult to obtain a satisfactory knowledge of their habits and food. Professor Zeller tells me that *Mussehliana* flies in fields where *Linum catharticum* abounds, and he evidently thinks the insect attached to that plant, which is found only in *dry* pastures; but M. Ragonot assures me that he has taken the moth in France, in *marshy* meadows. M. Jourdheuille relates that the larva feeds in stems of *Alisma*, but I feel no doubt that this is an error for *udana*, Gn. The habits of the whole of this group are still involved in great obscurity.

Argyrolepia Baumanniana, Schiff.—Changed by Dr. Wocke to *Hartmanniana*, Clerck (Linn.), a much earlier name.

Argyrolepia subbaumanniana, Wilk.—Not noticed in Staudinger and Wocke's Catalogue, nor till lately in Mr. Doubleday's List. I have found it commonly in old chalk pits near Norwich, and am thoroughly convinced that it is distinct from the preceding species, with which I have also been familiar in the damp woods of the south of England. To this, Mr. Doubleday and Professor Zeller, neither of whom was previously acquainted with the species, now agree. Wilkinson's description and distinctive characters are excellent, but many of the Norfolk specimens are far smaller than his measurement, some not exceeding five lines in expanse.

Argyrolepia badiana, Hübn.—Wilkinson is in error in saying that this species is to be found whereever the burdock (*Arctium lappa*) grows. It is, in fact, rather local, though common, where it occurs. I never could meet with a specimen in either the Haslemere or the Norwich districts, although burdock is reasonably common in both neighbourhoods; and Mr. Doubleday tells me that this is the case also at Epping Forest. On the other hand, Mr. Stainton once met with about five hundred specimens in one locality.

Argyrolepia cnicana, Dbld.—Dr. Wocke sinks this species (with doubt) into a variety of *badiana*, and the same opinion has been expressed by Prof. Zeller, under the impression that both forms are to be found flying together. This is not the case in this country, *cnicana* being apparently confined to damp localities, and generally found among thistles. Its characteristic form and markings are very constant, and I have no doubt that it is truly distinct. It seems to be widely distributed, as I have found it rather commonly near Haslemere, Surrey, and more rarely near Dublin and in the Norfolk fens, while specimens have been sent me from Cumberland, Yorkshire, &c.

I find that some years ago Mr. Doubleday sent specimens of both species to the late Herr Lederer, who then became convinced of their distinctness, not having previously seen the true *badiana*.

Argyrolepia Dubrisana, Curt.—Corrected by Dr. Wocke, and also by Mr. Doubleday in the Supplement to his List, to *zephyrana*, Tr.; and this Prof. Zeller confirms.

Argyrolepia maritimana, Gn., Wilk.—Professor Zeller assures me that this is only a large, dark variety of *zephyrana*, Tr., and much like the variety called *margaritana* by Herrich-Schäffer. To this opinion, in the absence of counter evidence, it seems advisable to submit, particularly as *zephyrana* is certainly a most variable species both in size and in the presence or absence of dark grey scales. In *maritimana* these scales are so abundant as to give it a strikingly distinct appearance at first sight, but there appears to be no reliable character. Dr. Wocke records six varieties of *zephyrana*, placing this form last.

Calosetia nigrimaculana, Haw.—Placed by Dr. Wocke in his genus *Steganoptycha*, between *pauperana* and *ramella*, and far away from the present family, with which it ill assorts.

(*To be continued.*)

Agabus maculatus.—The mention of this species in my notice last month, on *Coleoptera* occurring in Shetland, was due to an accidental error. The specimens on which it was founded were taken near Braemar.—T. BLACKBURN, Greenhithe: *October*, 1874.

Note on the occurrence in England of Helophorus tuberculatus, Gyll.—Of this insect, the most remarkable European member of its genus, I have observed two specimens (taken in *Sphagnum* in the Manchester district) among some insects sent to me for names by Mr. Joseph Chappell of Hulme. The species is of the average size of *H. nubilus*, and at once recognisable by its deep black colour and the conspicuous polished tubercular elevations on the second, fourth, and sixth interstices of its uneven elytra. Some of these elevations are oblong, but the majority (in one specimen the whole) are rounded blunt tubercles, thus exhibiting a slight variation from the type in which all are "*aliquot oblongis.*" The insect occurs in Lapland, Sweden, and North Russia, and is also recorded by Zebe from Prussia.—E. C. RYE, Parkfield, Putney, S.W.: *October*, 1874.

On imported Coleoptera.—I have this year kept a good look out for beetles amongst the timber imported here (see "Entomologists' Annual" for 1874, p. 55), and have found *Astynomus ædilis* and *Thanasimus formicarius* again pretty common, but not nearly so abundant as last year. All the larvæ of *ædilis* I have seen (some hundred) were feeding on the inner skin of the bark, and not on the timber; but they scooped out a place in which to pupate. I have also taken eight *Monohammus sutor* and five *Pogonocherus fasciculatus* on pit props imported from Sweden, and several of *Hylobius abietis* and *Pissodes notatus*, which I judge were bred in timber imported from France, and part of which is still stored on the quay.

I have noticed communications of the capture of *M. sutor* at various places *inland*, but this does not surprise me in the least, seeing that in nearly every instance the recorded localities are *collieries*, or very near collieries. Now, nearly every colliery is supplied with foreign pit props and timber, and when this is taken into consideration, one has not very far to look for the reason of *sutor* being captured in such a locality. There are hundreds of tons of timber and props sent from here weekly to collieries in Yorkshire and Lancashire, every inch of which is from foreign ports.

Apropos of Longicorns, I am much astonished at a recent assertion by a supposed authority, that these beetles only attack living, healthy trees, for I got some scores of *Rhagium bifasciatum* in Teesdale last spring out of tree trunks so rotten that I could have kicked a whole tree trunk down with my foot (I mean those trunks which had been blown off by the wind five or six feet from the bottom, of which there were plenty in the wood in which I was collecting). I never saw timber so rotten; it was literally dropping to pieces, and I could put my pocket knife into the trunk up to the haft.—J. GARDNER, 8, Friar Terrace, Hartlepool: *September*, 1874.

Observations on a viviparous Chrysomela.—Last year I collected some examples of *Chrysomela venusta*, among which were females with the abdomen much enlarged; these I placed, living, in a box. What was my surprise upon finding, next day, young larvæ eating the leaves of *Helosciadium nodiflorum* that I had placed with the insects, which latter I had found upon this plant which grows in marshy places. I was much astonished at the circumstance, and, wishing to verify the facts, I returned several days afterwards to again take the females, but did not find any, and, to my great regret, was obliged to defer my observations to this year. Already I had the thought that the insects were really viviparous, and from the time of their appearance set to work to find females in order to study them attentively.

I found two on the 31st of May in a very satisfactory condition for observation. Upon returning home I placed them in a suitable bottle, and next day was able to convince myself that they were really viviparous, for they laid no eggs, but gave direct birth to larvæ already rather large. I remarked that all were deposited in the same position, the abdomen appearing first, attached by an appendage of the last segment, that serves for locomotion during an early age, either to a leaf of the plant or on the glass of the bottle. The larvæ remained in this position for a minute without moving, their colour being that of a gummy substance. At the end of this time they commenced to colour and to become agitated: after ten minutes they were completely brown, and were already feeding upon the plant I had placed with them.

They changed their skin for the first time on the fifth or sixth day, a second time on the twelfth; on the sixteenth to eighteenth they had gone into the earth, and I have seen nothing of them since.

I do not know that this fact has been recorded, and think even that viviparous generation has only been noticed in the two Brazilian *Staphylinidæ* mentioned by M. Schiödte.—L. Bleuze, in the "Petites Nouvelles Entomologiques" for October 1st, 1874.

Note on the existence of stridulating organs in the genus Lomaptera.—While examining some specimens of the genus *Lomaptera*, I have ascertained the existence of some powerful stridulating organs in some of the species of the genus. If a specimen of *Lomaptera Latreillei* be examined, there will be found at the side of the second abdominal segment, close to the edge of the elytra, a slightly raised space thickly set with fine slightly-curved lines like a file, these lines being continued along the hinder margin of the segment for some distance; and a similar structure will be noted on the following third segment; and if the femur be examined, its inner surface will be found to be entirely covered with coarser and less regular lines. That these lines afford a means of making a noise is at once pretty clear, and is very easily demonstrated by seizing the hind tibia with a pair of forceps, and by its assistance moving the femur backwards and forwards with a slight pressure so as to make it grate against the abdominal surface, when a loud creaking or stridulation is produced.

This power is not confined to either sex; but, on the other hand, it is confined to one group of species of the genus, viz., the large oblong and but slightly convex species, in which the color is only slightly metallic; and among these species it will afford some valuable means of distinguishing the species; thus, in the *Lomaptera fasciata* of Burmeister, which inhabits the island of Waigiou, there is on the fourth abdominal segment an imperfect additional file, of which there is no trace in the *L. bivittata* of Gory, which inhabits New Guinea; these two species being now considered as only one (I think, erroneously). In the peculiar species *L. plana*, the inner surface of the femur is very rugose, but the raised abdominal files are absent, and there is only a comparatively imperfect series of the lines on the third abdominal segment, with some still more imperfect lines on the second and fourth segments, and the stridulating power of the species is comparatively slight. In some of the metallic species (with the peculiar developed pygidium) the inner surface of the femur is finely and densely rugose, but there is no stridulation produced by its friction against the abdomen; and in some of the red-legged species the inner surface of the femur is nearly smooth.

In the *L. nigrita* group there is no stridulating power.

So far as I am aware, stridulating power arising from friction of the extremity of the femur against the sides of the abdomen has not yet been indicated in the order *Coleoptera*.

Among the Lamellicorns there are many varieties of stridulating by peculiar apparatus arranged for the purpose, so that one is inclined to believe that the power of making a creaking noise is of some value to the species possessing it. Whether it is of use by making some enemy who has seized an individual abandon it from fright or surprise, only direct observation can show; but, judging from the loud noise produced in *L. Latreillei* on the dead specimen, I can well suppose that during life, when the noise is probably louder from the more perfect adaptation of the parts to one another, the sound produced may be really of use in this way.—D. SHARP, Thornhill: *August* 11*th*, 1874.

Note on Aulacothorax exilis, Boheman.—In the "Eugenies Resa," Boheman has described and figured (p. 35, pl. 1, fig. 1) a small Coleopterous insect from Tahiti under this name. The insect is placed by him, without any indication of doubt, in the family *Scydmænidæ;* but the figure of the species, and a magnified representation of its leg, point it out as belonging to the Tetramerous series of *Coleoptera*, the tarsi bearing the characteristic structure of that group. I should suppose it to be probably an Anthribid, allied to *Choragus* or *Xenorchestes;* but possibly it may be a Bruchid, allied to *Urodon*. The generic description throws no light on the insect, for the characters given can scarcely be considered generic, most of them, indeed, being reiterated word for word in the specific description. As the genus is ranged in the *Scydmænidæ* in von Harold's catalogue of *Coleoptera*, I suppose that Boheman's error has not yet been recognized, so I have thought it well to call attention to it.—ID.: 29*th September*, 1874.

On the mode of stridulation of Coranus subapterus, De Geer.—In the Mittheil. d. schweiz. ent. Gesells., iv, p. 159, Herr O. M. Reuter has a note on this subject, the result of his recent observations. He says that the stridulation, which was first noticed by De Geer, is not caused in the manner in which Westwood, after Goureau, states that it is made in some species of *Reduviidæ*, especially *Peirates stridulus*, namely, by the friction of the neck within the prothoracic cavity; but that although *Coranus*, when it begins to stridulate, inclines its head up and down so that the neck moves to and fro in the pronotum, yet it is not by this means the sound is produced. The insect moves the extreme point of its rostrum up and down the longitudinal channel of the prosternum, and only then the sound comes forth; when the rostrum was removed the stridulation ceased. Viewed under the microscope, the channel of the prosternum was seen to be very finely and closely striated transversely, and had all the conditions of stridulation of a violin, the rostrum working as a violin bow. Herr Reuter adds it is likely that other species of *Reduviidæ* stridulate besides those hitherto noticed, and that it is probable the sound is caused in all by means like those in *Coranus*.—J. W. DOUGLAS, Lee: *September 7th*, 1874.

On the resemblance to ants among the Hemiptera.—In the same volume, p. 156, Herr Reuter has some remarks on the resemblance of certain *Hemiptera* to ants, especially referring to the apterous females of *Systellonotus triguttatus*, L., which sex only is extremely like the workers of *Formica fusca*, the males being furnished with ample wings. When the "British Hemiptera" was in preparation, females were not accessible for description, but I caught some in time to put a figure on plate 12, and, in the 2nd volume of this Magazine, p. 30, I gave an account of their capture in the galleries of *Formica fusca*. Of the nature of the food of this species nothing appears to be known. The *Capsina* are believed to be all phytophagous, but in the present species the inquiline habitat and the imitation of the ants in structure and agility, both by the adult female and the early forms (Herr Reuter seems to think that the last is so in both sexes), seems to point to the food being either the ants themselves—larvæ or pupæ probably—or to some nourishment brought by the ants into their nest. I have (*l. c.*) suggested the former, and hoped that the matter would ere this have been elucidated by some Hymenopterist, but it still requires an investigator.

Herr Reuter also remarks on the similarity to ants of both sexes of *Diplacus albo-ornatus* Stål., and *Myrmecoris gracilis*, Sahlb. Both are very rare, and Herr Reuter suggests that by analogy they should be sought for in ants' nests. The latter species he once found near to a nest of *Formica rufa*. Both have yet to be found in Britain.

Camaronotus cinnamopterus, which in both sexes is very like a small *Formica rufa*, as noticed in the "British Hemiptera," p. 359, is constantly found on trees, &c., in company with that ant.

Myrmedobia coleoptrata, Fall., was found on a bank at Highgate, in company with small black ants, but not in their nests. Neither sex is like an ant, and the apterous female resembles the Coleopterous *Alexia pilifera*, which was found at the same time and place. But, as Herr Tieffenbach found the bugs *in* the ants' nests, it is certain that this want of similarity is no bar to the safety of the lodgers.—ID.

The British species of Chrysopa examined with regard to their powers of emitting bad odours.—The beautiful 'lace wing' or 'golden eye' insects forming this genus have, from the days of the earliest naturalists, laboured under the stigma of emitting disgusting odours, and have thus acquired the popular name of 'stink-flies.' Upon the principle that one or two notoriously bad characters in a community give a bad name to the whole, many persons unjustly condemn all 'golden eyes' individually and specifically, and I have often been surprised to find how deep-rooted is the belief in their universally noxious habits even among observant field entomologists. Several writers on the genus (including myself) have frequently pointed out that it is only some few species that have the power of emitting these odours when handled. During this summer I determined to test this subject with regard to our native species. Of the genus, as it now stands, we have twelve species, and I have examined living examples, during the season, of ten of these, carefully applying each individual to my nose as soon as caught; and probably nearly one hundred specimens have passed under this ordeal. The result is that in no one instance did any individual of *C. flava, alba, flavifrons, tenella, aspersa*, or *ventralis*, emit any appreciable odour; and I think *C. vittata* must be placed in the same category, although I have not this season had living examples before me. *C. vulgaris* I regard as 'suspected,' but the odour is uncertain, and, if present, almost inappreciable. *C. perla* and *phyllochroma* emitted a considerable amount of bad odour (and I think *C. abbreviata* does the same). *C. septempunctata* was, as usual, intensely disgusting, and I believe it is this species in particular that has acquired for the whole genus a bad name, and more especially because it is a garden insect, and thus comes more frequently under notice. The two exceedingly rare species of *Nothochrysa (capitata* and *fulviceps)* have not been tested, and, indeed, have never been seen alive by me (excepting one example of *capitata)*, but I believe they are as inodorous as are the majority of species of *Chrysopa*. The moral to be drawn from this is:—don't condemn a whole flock because there happen to be a few 'black sheep' in it.—R. McLachlan, Lewisham: *August*, 1874.

Abnormal appearance of Noctua festiva.—Some ova of *Noctua festiva*, laid at Rannoch at the end of last July, hatched in August, and the larvæ, feeding up very rapidly on *Polygonum aviculare*, began to change to pupæ about the 18th September. The first moth appeared on the 3rd October. This, for a hybernator (in the larva-state) is a pretty rapid transition.

I also obtained ova of *Aplecta occulta* at the same time, and have now a number of pupæ, the first larvæ having entered the pupa state on the 21st September. My friend Mr. Geo. Norman has, I believe, already recorded that he induced this insect to dispense with its accustomed hybernation.

Neither of the above species has been exposed, either as larva or pupa, to a higher temperature than the ordinary one of a room looking north, and without a fire.—J. B. Blackburn, Grassmeade, Southfields, Wandsworth, S.W.: *October 14th*, 1874.

On the food-plant, &c., of Lygris reticulata.—This moth (known to the followers of Guenée's arrangement as *Cidaria reticulata*, though Staudinger widely separates it from *C. silaceata*, which it generally resembles) was discovered some ten years back in the English Lake District, but has always remained one of our greatest rarities. Freyer, in Germany, had discovered the larva feeding upon *Impatiens noli-me-tangere*, and it is a significant fact that the Lake District is the chief locality for this rare plant in Britain. In the Stett. ent. Zeitung, 1874, pp. 237—240, Pastor Fuchs has a long and interesting paper on its habits. He finds the imago in Prussia, in places where the *Impatiens* grows, from the end of July to the middle of August. The quite young larvæ were observed towards the middle of October, and they would appear to feed up very rapidly. The larvæ much resemble the unripe seed-capsules of the plant and feed upon them, though chiefly on the leaves, hiding themselves in the dead leaves during sunshine. But he does not appear to have been fortunate, for his pupæ died shortly before the time of emergence of the imago. These hints may enable some of our northern Lepidopterists to find the insect more plentifully, and to breed it from the larvæ. It is somewhat curious that, feeding also on the *Impatiens* at the same place, Pastor Fuchs found the larvæ of *balsaminata*, which Guenée considers only a var. of *silaceata*, and which precedes that species in Staudinger's catalogue. When the larva of *reticulata* really becomes known in this country, southern entomologists will no doubt try it with *Impatiens fulva*, now becoming so common on the banks of the tributaries of the Thames; and perhaps it might not even refuse garden balsam.—Eds.

Emmelesia unifasciata three years in the pupa state.—In September, 1871, I collected a considerable quantity of the larvæ of *Emmelesia unifasciata* off *Bartsia odontites.* A few of the moths made their appearance in 1872, the greater number appeared in 1873, and the remainder, eight or ten specimens, emerged this season, having been three years in the pupa state.—A. H. Jones, Shrublands, Eltham: 8*th October*, 1874.

Obituary.

Francis Walker. More than twenty years too late for his scientific reputation, and after having done an amount of injury to entomology almost inconceivable in its immensity, Francis Walker has passed from among us. More than forty years ago, he became prominently known as an entomologist through his monograph of the minute parasitic insects of the family *Chalcididæ.* This was originally published in the old 'Entomological Magazine' with which Walker was closely connected.

Whatever shortcomings time may have proved to exist in that monograph, it marked an era in the study of its subject, and, as coming from the brain and pen of quite a young man, gave reasonable promise of a brilliant future. And its author never seemed to have forgotten his first love: he continued to publish on the group, and almost his latest productions, written at a time when his entomological reputation was worn to shreds, were on the *Chalcididæ.* Next to these insects, the *Diptera* and *Aphididæ* seem at one time to have engaged his special attention; and he was the nominal author of the three volumes on *Diptera* forming part of the 'Insecta Britannica' series, though the universal verdict of Dipterists accords most of the merit of this work to the part actually written by Haliday.

This latter publication brings us to the commencement of the second half of the present century, about which time Walker, in an unlucky moment, was induced to commence the series of British Museum Catalogues, that, associated with his name, have become objects of derision to all conscientious entomologists. As time wore on, volume after volume of these Catalogues appeared in a continuous stream, and almost on every order of insects, *Coleoptera* excepted (coleopterists have probably had their share of Walkers under other names). As *compilations* they are remarkable proofs, not only of the plodding industry, but also of the great amount of bibliographical research exhibited in them; and had Walker been content to leave them as *compilations*, they would have been regarded as blessings by all. But, essaying to do that which is beyond the power of any individual, he set to work to 'describe' in all orders, and multitudes of both generic and specific names are attributable to him. The result was what might have been expected. The work was done mechanically: 'New genera and species' were erected in the most reckless manner, and instances are on record in which individuals of one and the same species have been proved to have been made by him to do duty under several generic (and more specific) names. The inevitable consequences soon followed. The author, and the authorities of the British Museum who permitted the scandal, came under the lash of such criticism as has happily seldom been directed against scientific men. This criticism had no other effect than (apparently) to increase the evil. Walker, by nature, appeared to be utterly indifferent to anything that could be hurled at him, and the only apparent answer on the part of the ruling power at the Museum was the commencement of Catalogues of hitherto unassailed groups or orders. With no courage to resist such commands, the duties were accomplished, each part meeting the like verdict at the bar of scientific opinion as its predecessor; though we heartily believe that Walker was inwardly conscious of his inability to perform the tasks imposed upon him.

The evil did not stop here. Possessors of rich private collections who desired names for their insects, and travellers wishing to have Natural History appendices to the narrations of their adventures, naturally thought there could be no better authority than the semi-official compiler of Catalogues for the chief entomological collection in the world; and Walker was probably never known to decline any request from such quarters, so that, eventually, he may be said to have become a mere describing machine; and, not content with inflicting upon entomology the damage caused by his Catalogues, the pages of every available medium were filled with his lucubrations. To their honour, be it said, the Linnean and Entomological Societies long ago declined to publish some of his papers, so that the evil was somewhat mitigated, and of late his publications were few, outside the Catalogues. With regard to these latter, and much of his later work, he had not even the excuse of pecuniary need, for we believe his circumstances were such as to place him beyond the suspicion of being influenced in this way.

We earnestly hope that never again will it fall to us, nor to our successors in entomological journalism, to have to write such an obituary notice as this. That the motto, '*De mortuis nil nisi bonum,*' will be directed against us we fully expect; and we answer before-hand that we have only judged Walker as an *entomologist.* In his social relations he was amiability itself, and probably there are few men who have lived to the age of 65 (his age at the time of his death), and made so few enemies. Even those who felt most keenly the disrepute into which he brought the entomological section of our great Natural History Museum, will miss with regret his courteous salutation and simplicity of manner.

Mr. Walker died at his residence, Elm Hall, Wanstead, Essex, on the 5th of October, after what must have been a short illness. He was, we believe, of Scotch descent, and of an originally quaker family. He leaves one son, a clergyman (known as a collector of exotic butterflies), and several daughters.

William Lello. This gentleman was born in Shropshire, but at an early age settled in Liverpool, where, until his death, he was engaged in very active commercial pursuits, his short leisure being entirely devoted to the study of entomology and its handmaiden botany, often leaving himself without that rest and care for health which are necessary for a continuance of successful study. Although of strong constitution, possibly to this cause may, in a great measure, be traced the source of a very rapid illness which proved fatal, somewhat suddenly, on the 19th September last, at the age of 41 years. Being of reserved temperament, he never courted a large acquaintance, but those who knew him fully appreciated his active, generous, and undemonstrative friendship. He leaves a very considerable collection of *Lepidoptera,* formed under difficulties which would have daunted many.—[J. T. C.]

BRITISH *HEMIPTERA*—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

(continued from page 12.)

SALDA MARGINELLA.

Salda marginella, Fieb., Eur. Hem., 145, 8 (1861), *nec* H.-S., *nec S. marginalis*, Fall. (*vide S. opacula*, Zett. p. 9, *ante*).

Oval, black, with short decumbent black hairs, and slight golden pubescence. *Antennæ* black, first joint on the base, apex and under-side, and the second before the apex, ochreous or testaceous. *Pronotum:* sides slightly rounded. *Elytra:* anterior margin, except the base and apex, ochreous, with a short interruption beyond the middle, disc with ocellus, streaks and spots similar to *S. saltatoria.*

Head: face clothed with fine golden pubescence; *clypeus:* margin incrassated, ochreous. *Antennæ* black, finely haired; first joint ochreous on the base, apex, and under-side; second, ochreous or testaceous before the apex.

Thorax—pronotum short, sides slightly rounded, flattened, anterior callus with a single fovea, bordered before and behind with a row of punctures. *Scutellum* with a large, posteriorly abrupt fovea, surface crenulate, more strongly behind the fovea. *Elytra—clavus* with a posterior, triangular, whitish spot; *corium:* margin black on the basal fourth and the apex, otherwise ochreous, the sub-linear colouring widest posteriorly, wholly, or very nearly quite interrupted beyond the middle by a slight jutting out of the black ground colour, so that there appears to be a long, pale, marginal line, followed by a shorter one; inside the latter, and all but joined to it, is a round, whitish spot, and usually two other smaller ones in a line with it nearer the base; middle nerve black, bordered posteriorly on each side by an ochreous line, the outer one curved into the apical black spot; the usual ocellus near the base small, but distinct; the inner posterior angle with two or three very small ochreous spots; the posterior margin narrowly black; *membrane* ochreous, at the base more or less with cloudy, blackish spots, the nerves and a long spot in each cell black, the marginal area ochreous, broadly bordered with fuscous, and with a long black spot exterior to the outer cell. *Legs* testaceous; *thighs* with a black line beneath, inner-side with brown spots; *tibiæ:* outwardly with a black line from the base, short on the third pair, apex of all with a black spot.

Abdomen: beneath clothed with blackish hairs, the posterior margin of the segments narrowly whitish. Length 1⅜ line.

Very close to *S. saltatoria*, L., from which it is *primâ facie* distinguished by the first marginal streak of the elytra being the longest, and by a certain softness of the markings which is difficult to express in words. I have an example named for me, by Dr. Fieber which answers very well to his description in the "Europäischen *Hemiptera,*" but not to Herrich-Schäffer's description or figure of

S. marginalis (marginella), which are quoted by Fieber. Of the difference of the latter, Fieber seems to have become aware, as, after the publication of his work, he wrote on the ticket of my specimen, "*S. marginella*, Fieb., Eur. Hem., *nec* H.-Schff." Thoms. Opusc. iv, 407, 13, quotes *S. marginella*, Fieb.,=*S. opacula*, Zett., but, as above noted, this is not correct.

Hitherto rare; I have two examples which I took at Deal, in August, 1863.

SALDA FUCICOLA.

Salda fucicola, J. Sahlb., Not. Fenn., xi, 301 (1870).

Short-oval, black, dull; densely clothed with golden pubescence. *Antennæ* black, 1st joint testaceous inwardly, 2nd fulvous on the apical third. *Pronotum* short, sub-trapezoidal, anterior callus long. *Elytra—clavus* with a sub-apical spot. *Corium:* anterior margin in the middle with a long linear vitta, followed by a shorter one which does not reach the apex, and is frequently confluent with the lowest of three spots in a line next the marginal area, the disc otherwise marked as in *S. saltatoria*, L., but more distinctly; all the markings pale ochreous. *Membrane* pale ochreous, base (except two pale spots), nerves, and a long spot in each cell, black. *Legs* pale testaceous.

Head—clypeus: anterior margin narrowly incrassated, ochreous. *Face* ochreous or testaceous. *Rostrum* piceous. *Antennæ:* 1st joint testaceous, exteriorly with a black line; 2nd about twice the length of the 1st, mostly fulvous on the apical third.

Thorax—pronotum short, sub-trapezoidal, faintly punctate, sides anteriorly slightly rounded, flattened, the margin slightly reflexed, anterior callus occupying more than half the length, with one central fovea. *Scutellum* large, with a slight, transverse, median depression. *Elytra—clavus* with a sub-apical, elongate, ochreous spot. *Corium:* anterior margin at the base reflexed, in the middle a long linear vitta, followed by a shorter one which does not quite reach the apex; next to the vitta and exterior to the median nerve are three spots in a longitudinal series, the posterior one sometimes confluent with the lower marginal vitta; within the median nerve, towards the base, is the usual ocellus faintly defined except at its base; the black median nerve posteriorly, on the outer side, usually with a fine line, and on the inner side one shorter, broader, curved or sinuate; on the inner angle of the corium three or four small elongate spots more or less distinct (sometimes obliterated); all the markings pale ochreous, the three sub-marginal spots palest. *Membrane* pale ochreous, base black, with an ochreous spot in each of the two inner cells; nerves, and a long spot or streak (varying in *width) in each* cell, black; marginal area pale fuscous, below the outer cell a *sub-quadrangular* black spot, the anterior cuneiform space and a posterior spo pale ochreous. *Legs* pale testaceous, anterior coxal sheaths margined with whitish; *thighs* with a fine black line beneath; on the sides a row of small piceous punctures; *tibiæ* with fine, short, black spines, base and apex narrowly black; *tarsi* with apex of 3rd joint black.

Abdomen black, under-side with pale golden pubescence, the posterior margin of the segments narrowly (the last one more broadly) whitish.

Length 1½—1¾ line.

This species, which appears to be good and distinct, has doubtless been confounded with *S. saltatoria*, to which it has near affinity. It may be distinguished from it by its somewhat broader form, by the colour not being so deep a black, by the greater density of the pilosity, by the first marginal vitta of the elytra being long, and by the greater size and distinctness of the markings.

Dr. Sahlberg found his examples under sea-weed on the shores of the White Sea. I have taken specimens on the coast at Folkestone, Deal, Isle of Wight, and Stevenston, and also at inland localities.

BRITISH *HEMIPTERA*—ADDITIONAL SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

CAPSINA.

PHYTOCORIDÆ.

PHYTOCORIS PINI.

Phytocoris pini, Kirschb., Caps., 40, 21 and 123, 3 (1855); Fieb., Europ. Hem., 261, 11 (1861).

Brownish or reddish-brown, clothed with semi-erect black hairs, thickly intermixed with depressed white ones. *Head* with three or four transverse reddish or dusky-red streaks. *Antennæ:* 1st joint as long as the pronotum; 2nd, twice as long as the 1st; 3rd, about three-fourths the length of the 2nd; 4th, two-thirds the length of the 3rd. *Pronotum* with a velvety-black, more or less interrupted, line on or just within the posterior margin. *Scutellum* with a dark brown or black longitudinal streak on each side of the centre. *Elytra* brownish or reddish-brown, or more or less grey coloured and spotted with dark brown or blackish-grey. *Legs* dark fuscous-brown or black; *thighs* spotted longitudinally with white, 3rd pair with a more or less broad, transverse, white band on the inside before the apex; *tibiæ* dark fuscous-brown or black, with two narrow whitish or yellowish-white rings,—on the 1st and 3rd pairs two, on the 2nd three.

Head brownish or pale reddish-brown. *Crown* next the pronotum frequently dark brown, and divided in the centre by a short longitudinal line; next the anterior margin two dusky-red transverse streaks. *Face:* side lobes with two dusky-red transvere streaks, the intermediate spaces more or less whitish; apex of the central lobe generally pale. *Antennæ* dark brown or fuscous; 1st joint as long as the pronotum, longitudinally spotted with white, and with longish, erect, somewhat remote, black hairs; 2nd and 3rd narrowly white at the base, the former with a more or less distinct palo band just beyond the middle. *Rostrum* pale reddish, apex black.

Thorax—pronotum greyish-brown, frequently somewhat reddish in front; lateral margins with long black hairs, especially next the anterior angles; just within the pale posterior margin is a more or less interrupted velvety-black line; callosities in front generally darker than the disc. *Scutellum* brownish or greyish-brown, with a more or less distinct dark brown or black streak on each side of the centre, diverging posteriorly, central line narrow, frequently whitish; apex broadly whitish; basal angles dark brown. *Elytra* brownish or reddish-brown, or more or less grey coloured, and more or less spotted with dark brown or blackish-grey, generally most distinctly next the anterior margin; the trapezoidal patch at the apex of the inferior margin paler than the disc, its inner margin next the cells with a black clavate line not reaching to the lower angle. *Cuneus* brownish or greyish-brown, sometimes with a faint reddish tinge; exterior basal angle narrowly pale; apex, and a more or less interrupted line on the inner margin, black. *Membrane* fuscous, with a distinct white almost round spot at the apex of the clavus; disc more or less thickly covered with confused, short white streaks and spots; cell nerves dark, lower margin of the great cell-nerve white. *Legs* dark fuscous-brown or black. *Thighs:* 1st and 2nd pairs spotted longitudinally with white, the spots of irregular size; 3rd irregularly spotted with white, and with a more or less broad, transverse, white band, placed obliquely before the apex. *Tibiæ* dark fuscous-brown or black; 1st and 3rd pairs with two whitish or yellowish-white rings placed one before and one beyond the middle, those on the 3rd broader than those on the 1st, and with a few black punctures on the outside, in which are placed some of the brown spinose hairs; 2nd pair with three whitish or yellowish-white rings, two placed somewhat as in the other pairs, the third at the apex. *Tarsi* brown, 1st joint generally, apex of the 3rd and claws darkest.

Abdomen underneath dark fuscous-brown or black. Length 2¾ lines, barely.

This species belongs to the group in which are *divergens*, *ulmi*, *populi*, and *dimidiatus*, sometimes agreeing to a great extent in colour and markings with one and sometimes with another of these species. It is, however, to be identified from all of them by the shortness of the 1st joint of the antennæ. In *P. pini* it is only as long as the pronotum, whereas in the others it is longer.

Taken by Dr. F. Buchanan White on pine trees at Braemar.

LITOSOMIDÆ.

ALLOCOTUS (Fieb. M.S.), Puton.

Ann. Soc. Ent. Fr., 5 sér., iv, p. 218 (1874).

♂. Slightly elongate, sides almost parallel.

♀. Ovate.

Head obtusely triangular in front. *Crown* short. *Face* almost perpendicular; central lobe projecting beyond the side lobes. *Eyes* large, their outer margin projecting beyond the sides of the pronotum. *Antennæ:* 1st joint stoutest, projecting for at least half its length before the face; 2nd slightly clavate, three and a quarter times the length of the 1st; 3rd almost three-quarters the length of the 2nd; 4th half the length of the 3rd. *Rostrum* reaching to the base of the 1st abdominal segment.

Thorax—pronotum short, trapeziform, anterior margin straight; lateral margins slightly convex, widened posteriorly; posterior margin straight across the scutellum, then slightly rounded to the hinder angles. *Elytra* in the ♂ longer than the abdomen. *Wings* without a hook in the cell. *Legs* moderately long; *thighs,* 3rd pair stout; *tibiæ:* 3rd pair slightly concave a little below the base; *tarsi:* 1st joint shortest, 2nd twice the length of the 1st, 3rd about equal to the 2nd.

ALLOCOTUS RUBIDUS (Fieb. M.S.), Puton.

Ann. Soc. Ent. Fr., 5 sér., iv, p. 219, pl. vii, fig. 2 (1874).

Pink or brownish-pink, clothed with semi-erect black hairs intermixed with decumbent, shining, whitish ones. *Elytra* with minute red punctures in which the black hairs are set; *cuneus* (♂) orange-red, clothed with semi-erect black hairs; *membrane* of the ♀ slightly abbreviated.

♂. *Head* after death lurid; in front obtusely triangular. *Crown* convex, with an indistinct transverse channel near the base; distance between the inner margin of the eyes scarcely so great as the length of the head. *Eyes* large, pink or brown. *Antennæ* brownish-yellow. *Rostrum* yellow; apical half of the last joint black.

Thorax—pronotum pink or brownish-pink; callosities not prominent, bounded posteriorly by a faint transverse channel; disc flat-convex. *Scutellum* triangular, almost equilateral, flattish-convex, and with the usual transverse channel near the base. *Elytra* pink or brownish-pink clothed with semi-erect black hairs set in minute red punctures, and intermixed with decumbent, shining, whitish ones; *clavus,* after death, frequently somewhat fuscous; *cuneus* longish, orange-red, clothed with semi-erect black hairs; *membrane* fuscous, iridescent; cell nerves red, after death brownish. *Legs* brownish-pink, after death luteous; *tibiæ* yellowish, with a few fine dark hairs down the outer margin; *tarsi* yellow, apex of the 3rd joint and *claws* black.

♀. Ovate. *Head* more convex than in the ♂, distance between the eyes about equal to the length of the head; transverse channel at the base distinct.

Thorax—pronotum: callosities distinct, generally darker than the disc. *Elytra* clothed as in the other sex. *Membrane* slightly paler than in the ♂, and barely reaching to the apex of the abdomen. Remaining characters as in the other sex.

♂, ♀. Length 1¼ line.

We have also what we considered to be a *green* form of the foregoing insect, and in this idea we are borne out by Dr. Puton, who, however, had not, until the other day, seen an example. "Curiously "enough," as he observes in a letter, the original captor (in France), "M. Bellevoye, of Metz, arrived at the same time as your box, and "brought with him a green example." We subjoin a short diagnosis:

Var. MONCREAFFI.

Green in both sexes and clothed as in *A. rubidus*. *Head* yellow; *pronotum* in front yellow, more or less broadly green posteriorly. *Scutellum* yellow. *Elytra—corium* green, clothed as in *rubidus*, but with minute green punctures, in which the black hairs are set; in the ♂, *cuneus* paler than the corium. *Membrane* pale fuscous, iridescent; cell-nerves yellowish or brownish-yellow. All the other characters as in *A. rubidus*.

We have also one fuscous-black example, ♂.

Taken at Lumps' Pond, Portsmouth, by Mr. H. Moncreaff, upon or under *Salicornia radicans* (creeping, jointed glass-wort), from August up to the middle of October. We have named this variety, if variety it be, after its captor, who has added to our fauna so many good things from his locality.

(To be continued).

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(continued from Vol. x, p. 242.)

DORATURA, J. Sahlberg.

This genus was founded by the above author, in 1871, for the reception of the only two known European species which had been doing duty in genera with which they have but little in common. Only one of these species is as yet known to be British, but I believe the other will be found in Scotland, if not in England also, as its capture is recorded by Flor, Kirschbaum, Thomson, and J. Sahlberg.

Species 1.—DORATURA STYLATA, Boh.

Athysanus stylatus, Boh., Handl., p. 31 (1847); Kirschb., Athys.-Art., 14, 18 (1858).

Jassus (Athysanus) stylatus, Flor, Rhyn. Livl., ii, 273, 1 (1861); Marshall, Ent. Mo. Mag., iii, 10, 15 (1866); Kirschb., Cicad., 123, 1 (1868).

Jassus stylatus, Thomson, Opusc. Ent., i, 58, 27 (1870).

Doratura stylata, J. Sahlb., Not. Fenn., part 12, 292, 1 (1871).

Undeveloped form. ♂. In life, greenish-grey, changing, after death, to pale fuscous-yellow. *Head* somewhat deltoid, flattened above, and with a distinct transverse channel in front; sides arcuate; apex slightly raised; posterior margin concave. *Elytra* very short, only covering about one-third of the abdomen; posterior margin rounded.

Head—crown with three black spots on the anterior margin, the central one, at the apex, almost square; inner margin of the transverse channel on each side of the centre with a dark brown or black, almost comma-shaped patch; near the posterior margin one or sometimes two small black spots on each side of the centre. *Face* with two more or less irregular, transverse, black streaks, placed, one near the upper margin, the other in a line with the lower margin of the eyes. *Clypeus:* apex generally blackish.

Thorax—pronotum with a deep fovea on each side of the centre, in a line with which is a more or less distinct transverse blackish line, appearing as though shining through from beneath: posterior half finely wrinkled transversely. *Scutellum* yellowish or pale fuscous-yellow. *Elytra* very short, only covering about one-third of the abdomen, very finely rugulose, yellowish (after death) or pale fuscous-yellow; claval suture frequently with a narrow, brownish line; within the posterior margin and between the nerves, very narrowly brownish. *Legs* yellow. *Thighs:* first pair at the base broadly black, and with a ring or sometimes only a spot, on each side before the apex, of the same colour; second pair generally with two black rings, one near the base, and the other before the apex; third, with a black longitudinal streak down the middle of the inside. *Tibiæ:* inner margin of the first and second pairs generally very narrowly blackish; third, broadly black internally, throughout their whole length; spines on the anterior margin yellow, some of which are placed in a small black fovea; apex narrowly black. *Tarsi* yellow, apex of the first and second joints of the third pair black.

Abdomen above fuscous-yellow with a narrow yellowish dorsal line, frequently enclosed by a row of black spots; sides with two longitudinal rows of black spots; beneath black, posterior margins of the segments, except the two last, which are broadly so, very narrowly yellow, sides of the segments with a large, triangular, yellow spot; last genital segment above and on the sides with a black spot.

Length, 1½ line, barely.

♀. *Head* generally with five black spots on the anterior margin; extremity of the *ovipositor strongly* stylate, projecting considerably beyond the last genital segment. All the other characters nearly as in the ♂. Length 2 lines.

Not common. It has been taken by Mr. Douglas and myself at Dartford Heath, Seven Oaks, Boxhill, &c., in July and August, by sweeping.

Developed form, unknown to me.

Of the second species, *Doratura homophyla*, Flor, not yet known to occur in Britain, I may add, for assistance in leading to its identity, that it is larger than *D. stylata*, but of the same colour, and can, I may say *only*, be separated by the differences in the genital segments in both cases.

(*To be continued*).

DIAGNOSTIC CHARACTERS OF UNDESCRIBED *COSSONIDÆ*.

BY T. VERNON WOLLASTON, M.A., F.L.S.

Family COSSONIDÆ.

(Sub-Family PENTARTHRIDES.)

Genus *PENTARTHRUM*.

Wollaston, Ann. Nat. Hist., xiv, 129 (1854).

PENTARTHRUM SHARPIANUM, *n. sp.*

P. angustum, parallelo-sub-cylindricum, depressiusculum, sub-nitidum, rufo-piceum, elytris sensim pallidioribus; capite valde exserto, oculis prominentibus; prothorace (in ♂ subovali, sed in ♀ paulo magis triangulari) alutaceo, dense et sat profunde punctato, in ♀ tenuiter carinulato, sed in ♂ postice in medio late longitudinaliter sub-impresso; elytris parallelis, piceo-ferrugineis, punctato-striatis, interstitiis transversim rugulosis ac minute uniseriatim punctulatis; antennis pedibusque crassiusculis, pallide rufo-piceis; tarsorum articulo 3tio lato et valde profunde bilobo.

Mas, rostro latiore, pone medium gradatim angustato, alutaceo et sat profunde punctato; antennis mox ante medium ejus insertis.

Fem., rostro paulo longiore, gracili, sub-cylindrico, nitido et minutissime punctulato; antennis circa medium ejus insertis.

Long. corp. lin. 2¼.

Habitat in Novâ Zealandiâ, ab 'Auckland' a Dom. Lawson missum. Ad describendum communicavit D. Sharp, cujus in honorem nomen triviale dedi.

(*Obs.*—Species inter *Pentarthra* insignis corpore elongato angusto depressiusculo minus nitido, scutello magno, pedibus crassis, tarsorum articulo 3tio lato et valde profunde bilobo, necnon rostro secundum sexum conspicue diverso. A *P. longirostri*, in Novâ Zealandiâ degente, differt, inter alia, corpore longiore, angustiore, magis parallelo, magis depresso, et minus nitido; colore, præsertim in elytris, pallidiore; rostro dissimili, minus arcuato, et basi, mox pone oculos, haud a fronte stricturâ diviso; prothorace densius sed minus grosse punctato; necnon tarsis etiam latioribus. Formâ angustatâ parallelâ corporeque minus nitido etiam *P. angustissimum*, ex insulis Japonicis, aliquo modo simulat; sed corpore majore, pallidiore, scutello multo magis conspicuo, tarsorum articulo 3tio multo latiore ac magis bilobo, oculis magis prominentibus, necnon rostri structurâ toto cælo differt.)

The narrow, parallel outline, less shining surface, and rather diluted (or rufescent) hue of this elongate *Pentarthrum* (which is from New Zealand, and has been communicated by Dr. Sharp), in conjunction with the broad and deeply bilobed third joint of its feet and the great sexual dissimilarity in its rostrum (which in the female sex is long, polished, and acicular, but in the male comparatively broad and sculptured, though gradually and conspicuously rounded inwards, or attenuated, behind the middle), will at once separate it from every other species which has hitherto been described. Its scutellum is large and transverse, its legs are somewhat short and thickened, and its rostrum (as in the ordinary members of the genus) is scarcely at all separated from the forehead by a constriction immediately behind the eyes,—which latter structure forms so remarkable a feature in the *P. longirostre*, which occurs likewise in New Zealand.* In the slight *sexual dissimilarity* of its prothorax (no less than in that of its rostrum) it makes a more decided approach than is usual amongst the *Pentarthra* to certain members of the *true Cossonides*, such as we see in the groups around *Mesites*. I have had much pleasure in naming the species after Dr. Sharp, who has at various times entrusted to me the most interesting consignments of New Zealand Cossonids—received from Auckland by Mr. R. Lawson, of Scarborough.

(Sub-Family Cossonides.)

Genus *BRACHYSCAPUS* (?).

Wollaston, Trans. Ent. Soc. Lond., 463 (1873).

Brachyscapus? angolensis, *n. sp.*

B. oblongus, convexiusculus, nitidiusculus, calvus, ater; rostro (breviusculo, crassiusculo) nitido, leviter punctulato, oculis magnis sed demissis, supra haud latissime separatis; prothrace (elytris conspicue angustiore) sub-cylindrico-ovali, grosse et profunde punctato, pone apicem fortiter constricto; scutello mango; elytris (ad basin conspicue trisinuatis) profunde et grossissime sulcato-punctatis (punctis maximis), interstitiis convexis et fere haud punctulatis; antennis (circa medium rostri insertis) tarsisque (longiusculis, graciliusculis) rufo-piceis. Subtus (præsertim in sternis) grosse et valde profunde punctatus.

Long. corp. lin. 2½.

Habitat Africam occidentalem, ab Angola missus. In coll. D. A. Murray.

Although its scape is less shortened than that of the South African *B. crassirostris*, and its rostrum is both less thickened and less triangular, I, nevertheless, am inclined to suspect that the somewhat *Phlœophagus*-like Angolan insect, for which the present species has been proposed, and which is from the collection of Mr. Andrew Murray, is, on the whole, better referred, perhaps, to my genus *Brachyscapus* than to any other of the numerous forms of the sub-family *Cossonides*. For although it is not altogether impossible that it may eventually be found to constitute the type of a closely-allied group, it has, nevertheless, so much in common with *Brachyscapus*, not merely in its intensely black, deeply sculptured surface, and rather narrowed, oval prothorax, but likewise in its comparatively large scutellum, and the structure of its exceedingly sunken and not very widely separated eyes, that I think it is wiser (for at all events the present) to regard it as a member of that genus than to establish a separate one for its reception. Its *primâ facie* appearance is very much that of a large *Phlœophagus;* but, apart from all other characters, its conspicuously developed scutellum will at once distinguish it from that genus.

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* An extensive series of the *P. longirostre* which has lately been communicated by Dr. Sharp, *enables me to* correct the diagnosis of that species as regards *size*,—which, instead of being from *"1⅔ to 2 lines," may be stated to* be from 1⅓ to 2 lines.—T. V. W.

Teignmouth: *October*, 1874.

DESCRIPTION OF A NEW JAPANESE *LYCOPERDINA*.

BY THE REV. H. S. GORHAM.

LYCOPERDINA CASTANEIPENNIS, *sp. n.*

♀. *Ovata, picea, nitida, parcius sat fortiter punctata, thorace elytrisque convexioribus, his rufo-castaneis.* *Long. lin.* 3.

Allied to *L. dux*, Gorh., distinguished by its larger and more convex thorax, which is especially more enlarged in front; the elytra are also proportionally wider in the middle and more convex. Head and thorax pitchy, very feebly but visibly punctured, the latter a little longer than wide, with the sides sinuate, hind angles right; basal sulci longer than in *L. dux*, slightly arcuate, and well marked, as well as the transverse basal impression. Elytra short oval, their sides more rounded than in *L. dux*, of a uniform chestnut-red, scarcely lighter at the apex. Legs and antennæ pitchy-black, tarsi and extreme apex of the latter rufous.

Hab., Japan.

Two specimens, presenting the above differences from *L. dux*, are from the collection of Mr. G. Lewis. The species has more of the general appearance of the North American *L. ferruginea*, but is easily separated by its darker antennæ, legs, head, and thorax. They are both females.

Shipley: *November*, 1874.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(*continued from p.* 134).

In working out the very interesting and difficult genus *Eupœcilia* I have derived much assistance from the valuable paper by my esteemed friend Mr. McLachlan in the Ent. Annual for 1869, and shall confine myself to additional information received, and corrections made, since it was published.

Eupœcilia maculosana, Haw.—Prof. Zeller tells me that he cannot see that this species differs, except in size, from *purgatana*, Tr. Wocke, however, who doubtless knows our insect, gives them as distinct.

Eupœcilia atricapitana, Steph.—Common in Yorkshire, and not scarce in Norfolk, and probably to be found in all the chalk districts of the East of England, among rag-weed *(Senecio jacobæa)*, from the blossoms of which it has been reared by Mr. Howard Vaughan.

Eupœcilia dubitana, Hübn.—Stephens was correct in saying that this species occurs in Scotland. I have received specimens from my friend Mr. Chapman, of Glasgow, which were taken on the banks of the Forth and Clyde canal. It has also been taken this summer in Kent, within a few miles of London. It is so plentiful a species on the Continent, that its excessively local distribution in this country is rather remarkable. Some of its food-plants are mentioned by Mr. McLachlan, to which I may add *Solidago virgaurea.*

Eupœcilia albicapitana, Cooke.—Described by Mr. Nicholas Cooke in the Zoologist (p. 7800), and recorded without description in the Entom. Annual for 1862 (p. 111). Mr. McLachlan, however, sufficiently describes it, and points out its distinctive characters in his paper (E. A., 1869, p. 86).

It is, however, identical with *pallidana*, Zell. (Isis, 1847), as specimens sent me by him conclusively prove, and his name, having priority, must be adopted. This correction has already been made by Mr. Doubleday, in the latest supplement to his list.

Posterana, Zell., to which Mr. McLachlan refers is distinct from this, having longer fore-wings with dilated rounded apex, tinged with purplish. To this species, which has not yet been detected in this country, I shall have occasion again to refer.

Pallidana, besides the original habitat on the Irish coast, is common in the Isle of Man, whence I have received fine specimens from *the Rev. R. P. Murray.* In the collection of the Rev. Henry Burney are specimens most beautifully tinged with pink, but not otherwise differing from the ordinary form. Their locality seems uncertain, but it is probable that they were taken on the coast of North Wales.

Eupœcilia sodaliana, Haw.? Wilk.—Haworth's description of this species is hardly sufficient to distinguish it from *carduana*, Zell., or even (as he says nothing of the colour of the head and thorax) from *atricapitana*. Stephens' description, where not copied from Haworth, is worse, and Wood's figure is anything but characteristic, being, to all appearance, drawn from a damaged specimen in Haworth's collection (still existing in the British Museum), in which the peculiar dorsal blotch is nearly obliterated. Consequently, Dr. Wocke quotes *sodaliana*, Steph. (he does not refer to Haworth), without question, as a synonym of *hybridella*, Hübn.

I think, therefore, that it will be better to place ourselves in accord with continental entomologists by adopting *amandana*, H.-S., for this species, since it certainly has priority to Wilkinson's really excellent description.

Eupœcilia carduana, Zell.—Prof. Zeller, with Heinemann, thinks it doubtful whether Wocke is correct in referring this species to *hybridella*, Hübn., while Guenée says that Hübner's figure correctly represents *bred* specimens. Hence he appears to know its food-plant, but here arises a difficulty. M. Jourdheuille in his Calendar states that its larva feeds in thistle heads, assuming the pupa state within them; but examples of this thistle-feeding species, sent by M. Ragonot from Paris, prove to be *posterana*, Z., and not *carduana*, from which they are readily distinguished by the straighter costa, dilated apex, and whitish hind-wings. *Carduana* has the costa rounded, and the hind-wings dark grey, but a reference to Mr. Stainton's copy of Hübner confirms Dr. Wocke in its identity with *hybridella* (Hübn., Tin., 351), and it will, therefore, be safe to follow Mr. Doubleday in adopting this name.

Eupœcilia nana, Haw.—By some inadvertence this species occurs twice in Dr. Wocke's Catalogue: first, at No. 880, as *nana*, Haw., Steph., and Wood, and again, No. 898, as *ambiguana*, Fröl., with *nana*, Wilk., Steph. Manual, as a synonym. But as Wilkinson and Stainton refer to the same species as Haworth, his name, having priority over that of Frölich, must stand.

The larva is said to feed in birch catkins.

Eupœcilia ambiguella, Hübn.—With Mr. McLachlan, I have felt great doubt whether our wood-frequenting insect could be identical with that which causes so much damage on the continent by feeding on the flower buds of the vine, but Prof. Zeller assures me that they are identical, and that it occurs also in woods in Germany, where there is no vine.

I much regret that I have had no opportunity of trying again to rear what I believe to be the larva of this species in berries of *Rhamnus frangula* (E. M. M., vol. vi, p. 113), among which plant the insect always occurred in the Haslemere district.

Eupœcilia curvistrigana, Wilk.—Undoubtedly distinct from *angustana*, having broader fore-wings. Prof. Zeller tells me that he sees no character to distinguish it from his *gilvicomana*, with which *flaviscapulana*, H.-S., appears to be identical. But as I have been unable to send him more than one or two specimens, from which he could not give a decided opinion, and he has not been able to send me *gilvicomana*, and as, moreover, I do not recognize our insect in Herrich-Schäffer's figure of *flaviscapulana*, it will not be advisable to alter the name without further information.

Eupœcilia angustana, Hübn.—Dr. Wocke substitutes *cruentana*, Fröl., doubting whether Hübner's fig. 74 refers to this species. I think, however, that there is little doubt about this, and see no reason for making the alteration.

Rössler's observation respecting one of the food-plants of this species is confirmed by the Rev. Henry Burney, who writes: "I bred "several specimens last July from larvæ found here on common "yarrow (*Achillea millefolium*) growing by the side of a corn-field, and "a long way from any heath. The larvæ feed on the seeds of the "yarrow, fastening the dead flowers together in little bunches or "knots. They are thick, short, and stumpy little things, of a flesh or "reddish-white colour, and are very active and apt to wriggle out and "drop on the ground when one attempts to cut off the flower-head."

There is something unsatisfactory about this species in the fact that the June brood occurs in woods, fields, and marshes, as well as heaths, and is richly coloured and large, but not very abundant, while the August brood, which is smaller and paler, occurs in swarms, but almost exclusively on heaths.

Eupœcilia notulana, Zell.—I think it most likely that this species, like so many of its congeners, feeds on the *flowers* or *seeds* of *Mentha*, and only enters the stems to spin up. It also feeds on *Inula dysenterica*.

Eupœcilia griseana, Haw.—This is a subject not to be lightly handled! It has cost me many hours of careful study, comparison, and consideration for years past, and I have arrived at no very satisfactory conclusion yet—nor has anybody else.

To begin with, Haworth's description is not satisfactory, not recognizable, in fact, I may go further and say, incomprehensible and untranslateable. He compares it with *roseana*, but without at all making his meaning clearer, and only gives one a faint idea that he *may* have had *notulana*, Zell., before him. Stephens copies his diagnosis, but adds a description, to which I shall have to refer presently. Wood figures *subroseana*, Haw., under this name. Mr. Doubleday, in his list, sunk it into a doubtful synonym of *udana*, Gn., and Wocke (without the query) restored it as the prior name, making *udana* the synonym. But *udana* is not grey, and the description does not apply to it at all. Mr. McLachlan passes *griseana* with very short notice, bút makes it synonymous with *Manniana*, F. v. R.—a yellow species —as well as with *udana*, Gn. The consequence is that at least half-a-dozen different species have been sent to me as *griseana*, Haw., and I had come to the conclusion that the name must be discarded altogether, when, in examining the collection of *Tortrices* in the British Museum, I came upon eight specimens, in fine condition, and labelled from Stephens's collection, which stood under the name of *griseana*, and are not, in my judgment, referable to any other species with which I am acquainted. These specimens have the fore-wings brownish-grey, with a dark brown central fascia attenuated towards the dorsal margin, and a brown streak or narrow fascia before the apex. Cilia ochreous with brown spots. Hind-wings fuscous. They agree so closely with Stephens's *English* description, that I see no reason why the name should not be retained for them. The locality from which they were obtained is unknown, and I am not aware of the existence of any similar specimens in any private collection. This species is larger than *Vectisana*, with more rounded fore-wings, and seems intermediate between it and *rupicola*.

Eupœcilia udana, Gn.—This is the species from which Messrs. Stainton and Wilkinson's descriptions of *griseana* were taken. Guenée's description is tolerably accurate (but the glossy shades seem to fade readily, and leave it a comparatively dull ochreous).

"Anterior wings glossy, variegated with dark olive, ochreous, and "silvery markings, a darker central fascia not very clearly defined, in "which is a blackish spot. Apex of the wings ochreous and marked "with brown. Postèrior wings greyish-fuscous. Head and palpi "yellow."

"It flies in marshy meadows among *Carices* in August" (Gn. Ind., 61). It may be best distinguished from its congeners by its mottled ochreous ground colour and entire dark central fascia, broadest in the middle, with a black spot at its hinder edge.

It has been taken rather commonly near London, by Messrs. McLachlan, Machin, and others, among *Alisma plantago*, upon which plant it is said, by Heinemann and Zeller, to feed. Mr. Machin now informs me that he has reared it this season from larvæ feeding in the stems of *Alisma* in the Hackney Marshes. It also occurs more rarely in the Norfolk fens.

Although Wilkinson's description of *griseana* seems to have been taken from this insect, his observations upon it are most puzzling, since it is *not* very similar to *Vectisana*, nor does it at all resemble his *subroseana (ciliella*, Hübn.). Moreover, the species which has been reared from *Inula dysenterica* is not this, but *notulana*, Z., as proved by specimens sent me by Mr. Doubleday. I suspect, however, that it is to this species that M. Jourdheuille refers in his Calendar, when he gives *Alisma plantago* as the food-plant of *Musschliana* and of *notulana*.

(To be continued.)

Note on a species of Apion new to the British list.—There are two examples (♂ and ♀) of an *Apion* set aside in Dr. J. A. Power's collection, taken by himself in 1867, at Hastings, which differ considerably from any recorded British species, and are, I think (in spite of a discrepancy in measurement), to be referred to *A. opeticum*, Bach (Wencker, Mon. des Apionides, p. 10). That species is described as differing from *pomonæ* in its size being often smaller (the smallest being 2½ mill.), its invariably black colour, its rostrum being more abruptly contracted a little after the middle, and less dilated at the base in both sexes, and its antennal club being pointed-ovoid,—the club being more elongate in *pomonæ*. Now, Dr. Power's insects agree well enough with *opeticum* as thus characterized (the lesser basal dilatation of the rostrum being best seen laterally), except that they barely exceed two mill. in length (*rostro excluso*). They have, as should *opeticum*, entirely the facies of *subulatum*, but with the rostrum shorter, stouter at the base, and more abruptly contracted. They are of the same size as small *craccæ*, but less pubescent, especially in front, with only the base of the first antennal joint testaceous, &c. According to Wencker, *A. opeticum* lives on *Orobus vernus*.—E. C. Rye, Parkfield, Putney, S.W.: *November*, 1874.

Observations on a viviparous Chrysomela.—With reference to the note on this subject by M. Bleuze, a translation of which appeared in our last number (*ante* p. 135), M. Valery Mayet has shewn in the Pet. Nouv. Entomologiques for 1st November, 1874, that the fact is not new, it having been already recorded by M. Perroud in the Annales de la Soc. Linnéene de Lyon for 1855. This article is entitled "Notice sur la viviparité ou l'ovoviviparité des *Oreina speciosa* et *superba*," pp. 402—406; and, according to M. Mayet, *Chrysomela* (or *Oreina) venusta* may be only a variety of *speciosa*. It is possible the habit may be the rule, and not the exception, in species of *Oreina*; any way the fact is in the highest degree interesting, and although M. Bleuze's discovery is not new, it is a valuable confirmation of M. Perroud's observations.—Eds.

Hybrids between Smerinthus ocellatus and S. populi.—When sending my note a month or two ago (*ante* p. 116) on the brood of the hybrid between *Smerinthus ocellatus* and *populi*, reared here, I had not noticed an interesting fact, since pointed out to me by Mr. Joseph Sidebotham of Manchester, namely, that every specimen had *male* antennæ. Since then I have also heard of several other broods that have been reared at different times, but in no instance has a specimen having *female* antennæ been noticed. I suppose there is little doubt that all the specimens were neuters; but it would be interesting to learn if all hybrids between these or other species take this form. In all the instances I have heard of, the parents were ♂ *ocellatus* and ♀ *populi*.—Geo. T. Porritt, Huddersfield: *November* 12*th*, 1874.

Deiopeia pulchella at Folkestone.—On the 28th ultimo, whilst shooting near Folkestone, I disturbed a specimen of *D. pulchella* in a field of mustard, and after a short chase succeeded in pinning it. It is a female specimen in fine condition. The place where I took it is only about three hundred yards from the spot where my brother, Mr. T. H. Briggs, took a specimen in 1869 (E. M. M., vol. vi, p. 141), and, as in that case, a field of swedes and white turnips adjoined. I have seen three other specimens taken in the neighbourhood, one of which, captured in the Warren, I have since secured, and it is now in the cabinet of Mr. Howard Vaughan.—C. A. Briggs, 55, Lincoln's Inn Fields: 12*th November*, 1874.

Aplecta occulta bred in October.—I have recorded in the current number of the Magazine (*ante* p. 139) that larvæ of this species, hatched in the first week of August, had fed up rapidly and assumed the pupa state. I bred the first moth on the 20th of last month, and have had several more out since, at intervals of a day or two. They are mostly very fine examples of the black Rannoch form, and are, I think, on the average, quite as dark as those taken there at sugar. The larvæ were fed almost entirely on *Polygonum aviculare.* No means of forcing were used with the pupæ to accelerate the appearance of the moths.—J. B. Blackburn, Grassmeade, Southfields, Wandsworth, S.W.: 10*th November*, 1874.

Depressaria Yeatiana bred.—Dr. Jordan having mentioned incidentally that he had bred this insect, I wrote for some details of the fact, in reply to which he wrote me as follows: "Three or four years ago, in July, a larva was brought to me, "at Teignmouth, by my brother, on a plant of *Senebiera (Coronopus) didyma*, which "came out as *Depressaria Yeatiana*. The *Senebiera* was a weed in a large bed of "carrots, and the deduction at which I jumped was that the larva, which was ready "to spin, fed upon carrot, and, moreover, as garden carrots are not allowed to flower, "that it probably fed on the leaves.

"The larva was very remarkable from its black, shining acute head, and I should "know it again; its body was entirely green, I suppose the spots had faded because "it was quite ready to spin up; this it did at once in a pill-box, and the moth came "out in about three weeks. I have the specimen now."

I hope this information may enable those who are in the habit of taking the imago to meet with the larva.—H. T. Stainton, Mountsfield, Lewisham, S.E. *November* 16*th*, 1874.

Rare Tortricina.—Since my return from Scotland, I find among my *Tortrices* the following scarce species: *Penthina prælongana* and *Staintoniana, Mixodia rubiginosana (Bouchardana), Asthenia cosmophorana* and *cognatana,* also *Dicrorampha herbosana.* For the identification of some of these and several others I am indebted to Messrs. C. S. Gregson and C. G. Barrett.—JOHN T. CARRINGTON, Egremont: *November,* 1874.

Notes of Lepidoptera from South Wales.—In the May number of the Magazine I had the pleasure of noticing the capture of *Xylina conformis* here. I have now to note the capture of *Sterrha sacraria*—a female who had deposited her ova, having come to light on the 12th inst.

Among the more interesting species of *Lepidoptera* which have shown up this year are *Agrotis saucia* (a fine variety); *Hoporina croceago; Epunda nigra,* a fine series in the second week of September; *Plusia orichalcea,* two; *P. festucæ,* several; *Macaria alternaria,* two.

I have scarcely seen one *Sphinx* the whole summer through.—JOHN T. D. LLEWELYN, Ynisygerwn, Neath: *October 17th,* 1874.

Notes on larva-collecting, &c., in the New Forest.—As there appears to be some doubt as to the natural food-plants of the larva of *Acronycta alni,* perhaps the following may be of interest.

During the last week in July, while on a collecting excursion in the New Forest, my friend, Mr. Ross of Bathampton, beat a larva of this insect either off oak or beech—I think the former. Seeing in Mr. Newman's "British Moths" that the natural food-plant was doubtful, he offered it several different plants to choose from. It attached itself to the *beech* and sallow, on both of which I myself saw it feeding. He afterwards found another and smaller larva hanging by a thread to a birch leaf—but this was injured and did not live long.

On the 1st of August I joined Mr. Ross at Lyndhurst, and on the 2nd, whilst beating for larvæ in a wood known as "Park Hill," chiefly consisting of beech trees, I beat a half-fed larva of this species off the bough of a beech-tree. It had not then changed its last skin, and was very peculiar in appearance, being mottled with dirty white and grey. It possessed clubbed hairs like those of the adult larva on the second and twefth segments only—they being replaced on the other segments by shorter pointed and somewhat spine-like hairs. My friend, Mr. Bartlett, having kindly undertaken to take charge of my larvæ, this was despatched to him along with the others, and beech not being obtainable in his neighbourhood, he supplied it with sallow, on which it fed up well, and eventually spun its cocoon in a piece of cork.

On the 16th of August, the last day of my stay at Lyndhurst, I beat a larva of *Stauropus fagi.* Mr. Ross also took a larva of this species.

We found larvæ of *Acronycta leporina* not uncommon on the smaller birches growing in heathy places. In one day I succeeded in beating eight (Mr. Ross found them more common at the beginning of September). It is, I think, somewhat remarkable that it was of no use to beat the fine old birch-trees which abound in many parts of the forest. I do not think I obtained a single larva, either rare or common, off them, although on the birch-bushes and shoots larvæ were common. Besides the above, we took the following larvæ:—*Lithosia aureola,* rather common on oak and beech; *Liparis monacha,* one, taken the second week in August (surely very late ?), from which I bred a very fine ♀; *Eurymene dolobraria*, common in one inclosure, on oak, elsewhere rare; *Ennomos tiliaria*, two (I also beat one imago, a ♂, out of the bough of a birch); *E. erosaria*, two; *Boarmia roboraria*, by no means uncommon in the inclosure above-mentioned, not so common in other localities; *B. consortaria*, not rare: one ♂ imago emerged at the end of September; *Cidaria psittacata*, a few on oak; *Dicranura furcula*, two; *Notodonta dictæoides*, very scarce: I only took two, both ichneumoned; *N. dromedarius*, not common; *N. Chaonia* and *dodonæa* (the latter much scarcer than it was last season); *Diphthera Orion*. The larvæ of this beautiful *Noctua* were not nearly so common as the abundance of the imago during June led us to hope they would be. Up to the 15th of August I had only taken about a dozen. I then discovered the inclosure named above, and here they were not rare, as I beat twenty in two days (sixteen on the last day—the largest number, I believe, taken in one day by any collector in the forest). We also took many other species, some of which we do not yet know. As to the imagos, I captured very few worth naming, as the weather was very bad, and the insects scarce, I did not do much day-work, devoting myself almost entirely to larva-collecting; indeed, besides the *E. tiliaria* already recorded, I only captured one fine ♀ *Demas coryli* (which laid me a large batch of ova), one ♀ *Platypteryx lacertula* (which also favoured me with eggs), and one *P. unguicula*. Sugaring was not much more productive. The only captures by its means worth noticing were:—*Cidaria immanata* (a nice series); *Cerigo Cytherea* (not so common as usual); *Agrotis puta*, two; *Tryphæna interjecta*, two; and *Noctua rhomboidea* (common, but mostly worn. I obtained a number of ova from some injured females).

Catocala promissa and *C. sponsa* were not common. Of the latter I managed, after much trouble, to obtain a few ova. I kept the ♀ for a week before she began to lay, and on opening her body after death discovered a number of ova still in the ovary.—B. LOCKYER, Euston Road, N.W.: *October* 12*th*, 1874.

An entomological scrap.—To-day, while seated in one of the city dining-rooms, I got into conversation with my *vis-à-vis*, a middle-aged gentleman, apparently very intelligent and of good education. Suddenly his attention was attracted by several lively examples of the little House-Ant (*Diplorhoptrum domesticum*) running about on the table-cloth. He asked me what they were. I replied "Ants." The gentleman considered for a moment, and then made the profound remark: "*I should have* "*thought they would have done having young ones at this time of year.*" Could anything demonstrate more forcibly the necessity for elementary Natural History forming part of our educational system?—R. MCLACHLAN, Lewisham: 18*th Nov.*, 1874.

Review.

INSECTS ABROAD; being a popular account of Foreign Insects, their structure, habits, and transformations. By the Rev. J. G. WOOD. 8vo, pp. 1—772. London: Longmans, Green, and Co., 1874.

This is a companion volume to "Insects at Home," by the same writer. Mr. Wood is well known as a prolific and successful book-maker in the department of Natural History, and this work is not inferior to any of his previous ones, and a marvel of cheapness. Those who merely desire a pretty and interesting volume for the drawing-room table, will find this answer their purpose, in spite of the letterpress (where not avowedly or obviously copied) consisting mostly of vague colour-descriptions and useless discussions of the meanings of the mere names of the species figured. The innumerable wood-cuts (from drawings by Mr. E. A. Smith) are mostly clever, but sometimes show too much straining for effect, and an excessive foreshortening. Of course, absolute scientific accuracy is hardly to be expected. Perhaps the most unpardonable *lapsus* is to be found at p. 371, where a magnificent species of the curious Neuropterous genus *Nemoptera* is figured as an *Ascalaphus (!)*, and the insect represented as hawking, dragon-fly-like, over the surface of a pool, equally out of place for either a *Nemoptera* or an *Ascalaphus;* and another unhappy disregard of habits is to be seen on pl. xviii, where one of the *Cicadæ* has its rostrum applied, humming-bird-like, to the flower of an orchid. Mr. Wood has gone out of his way in naming 'new species' in several orders, apparently from the collections of the British Museum (e. g., *Forficula Petropolis* [!], p. 279),—a process not likely to add to the prestige of that Institution, and implying a poor return by the author for the (acknowledged) civility of its officers, who will, moreover, scarcely approve of his publication of their unguarded conversational remarks.

Obituary.

Henry Dorville. Many of the readers of this Magazine will be sorry to learn that this gentleman died on the 30th October, for they will mourn the loss of a valued correspondent. He did not turn his attention to entomology until quite late in life, though when young he had the advantage of knowing intimately several eminent naturalists, such as Dr. Leach, &c. He was born in Devonshire in 1798, and at not much more than thirteen years of age joined the navy, and was serving as a midshipman on board the "Bellerophon" when that ship brought Bonaparte to England. Not long after this, however, he was attacked by a constitutional malady, which obliged him to relinquish his profession, and from which he was never afterwards quite free. In 1819 he was appointed Vice-Consul at Venice under Hoppner, and in that office gained by his courtesy and integrity the friendship of many of his countrymen travelling or residing in Italy. Lord Byron, then at Venice, entrusted him for a time with the care of his little daughter 'Allegra,' and in Moore's edition of the poet's works, Mr. Dorville's name is often mentioned in letters to Hoppner.

In 1823 his weak state of health compelled him to give up his appointment, and for the next ten years he moved about, sometimes in England, sometimes on the Continent, being part of the time at Rome, where he again fell in with Leach, who was there with his sister, and with him used to visit Lucien Bonaparte; he had not, however, in those days sufficient knowledge of natural history to take much interest in their pursuits; only he remembered that Leach was engaged in a classification of insects by their mouths, and seemed perfectly rational except on one or two points, the mention of which would at once throw him off his balance.

In 1833 Mr. Dorville finally came to England, and soon after settled at Alphington near Exeter, and there the latter half of his life was passed as free from change as the first half had been full of it. His favourite pursuit here was at first gardening, but in 1856 symptoms of heart disease beginning to show themselves, and butterflies happening to swarm on his flowers, he took the advice of a friend, and exchanged the more severe exertion of gardening for collecting *Lepidoptera,* and the interest excited by the new pursuit seemed to give him, then close on sixty years of age, a new lease of life. Being unable to endure much fatigue, he could seldom make *excursions* in search of the various species in their native habitats, so he set himself *to entice them to come to him* instead. With this view he planted his garden with attractive flowers, and for years together spread sugar on his apple trees, night after night, in winter as well as summer, until at last his acre and a-half of garden ground, though from its situation devoid of unusual advantages, seemed to become a very rendezvous of moths, especially among the *Noctuæ*, and if there were any unusual species about, they generally paid him a visit. During the last year of his life he had commenced to draw up an analyzed list of the species he had thus captured or observed, but, unfortunately, he was not able to complete it; this is to be regretted, as such a list, compiled from nearly twenty years steady, continuous observation in one spot, would have been valuable in throwing light on the periodical abundance and scarcity of species, and the influence of successive seasons of varied character.

To Mr. Dorville's active and temperate habits it must be ascribed, that though never free from severe pain for many days together, his sight was so clear, and his hand so steady, that he could pin and set out a Micro almost to the last; and to the very last his mind retained all the freshness of youth, and he felt and showed a keen interest in all the questions of the day. Those who knew him at all, whether from personal intercourse or only from correspondence, were struck not only by the perfect straightforwardness and sincerity of his character, and his detestation of everything false and mean, but also with his kindliness and liberality, and, in the best sense of the word, could heartily endorse Lord Byron's eulogy of him, "Dorville is" (alas! now, *was)* "a good fellow."

His collection of British *Lepidoptera* has been given to the Albert Museum at Exeter, and to the Linnean Society some unpublished MSS. of Col. Montagu, which were in his possession, with the original drawings, from which the illustrations of the 'Ornithological Dictionary,' and the 'Testacea Britannica,' were made. He was a member of the Entomological Society of London since 1865.—J. H.

ENTOMOLOGICAL SOCIETY OF LONDON: *November 2nd*, 1874.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Mr. S. Stevens exhibited three specimens of *Deiopeia pulchella* from Arundel and Deal, and a *Noctua* from Dover that he had not been able to identify.

Prof. Westwood remarked that Brigadier-General Hearsey used to find the larvæ of *D. pulchella* destructive to his gardens in various parts of India. He also stated that from the pupæ of *Pronuba yuccasella*, sent to him by Mr. Riley, the moths had continued to emerge for three months. He further remarked that he had lately seen the collection of the late Dr. Herrich-Schäffer, which was not in good order, though the *Micro-Lepidoptera* formerly belonging to Fischer von Röslerstamm were in good condition. At Geneva he had visited the New Museum built in the old moat of the city, and it suffered in consequence from damp, but the *Coleoptera* formerly forming the collection of M. Melly were upstairs and in good order.

Mr. Bird exhibited several rare species of British *Lepidoptera*, including *Sesia culiciformis* with white bands, *Limacodes asellus*, *Nola albulalis*, *Nonagria brevilinea* from Horning, and *Pterophorus rhododactylus*, bred.

Mr. Weir exhibited *Mantis religiosa* and egg-cases found by him at Meran in the Tyrol.

Mr. McLachlan exhibited a printer's block (such as is used for printing posters) attacked by *Anobium*, and he was informed that the attacks of the insect were causing serious damage to the stock of similar blocks. The wood was believed to be pear-tree. He had recommended soaking them in a solution of carbolic acid in water.

Dr. Sharp communicated "Descriptions of new genera and species of *Pselaphidæ* and *Scydmænidæ* from Australia and New Zealand." Three species pertained to the former group, forty-one to the latter. From Australia there were twenty-six species of *Pselaphidæ*, from New Zealand fifteen. Dr. Sharp commented upon the New Zealand Fauna with regard to the prospect of its apparent extinction.

A paper was communicated by Mr. Darwin on the larvæ of *Papilio Nireus*, and especially on the colour of the pupa in connection with that of the surroundings of its place of attachment, according to the observations of Mrs. Barber in South Africa (accompanied by explanatory figures), who hinted that there might be natural photographic influences at work. Mr. Meldola stated that no known substance retained, permanently, the colour reflected on it by adjacent objects; and in reply to remarks made by Mr. McLachlan on the fact that flower-feeding larvæ often assume (in the same species) the colour of their food, said that this might, perhaps, be caused by the colouring matter of the flower being assimilated in an unaltered condition by the larvæ.

Mr. A. O. Ward communicated notes on a singular spider's nest found by his father at Poissy on the Seine; he described it as pertaining to a spider that made a symmetrical web. Mr. C. O. Waterhouse, to whom he had sent it, made a section and drawing of it, and found it to contain much sand mixed with the ordinary web; this sand, it was suggested, might possibly serve as ballast.

Mr. Butler read "Descriptions of three new species and a new genus of Diurnal *Lepidoptera* from the collection of Mr. Swanzy;" these were from Whydah, West Africa.

Mr. Kirby communicated a review of Boisduval's "Monographie des Agaristidées," published in the Revue et Magasin de Zoologie, 1874, pp. 26—110.

The Rev. R. P. Murray read "Descriptions of some new species of butterflies belonging to the genus *Lycæna*," and commented upon the value of the generic characters assigned to insects of this group.

Mr. C. O. Waterhouse read "Notes on Australian *Coleoptera*, with descriptions of new species."

HAGGERSTON ENTOMOLOGICAL SOCIETY.—The Seventh Annual Exhibition was held at the Rooms, 10, Brownlow Street, Dalston, on the evenings of November 12th and 13th. Among the rarer species exhibited were the following:—*Ophiodes lunaris; Dianthœcia albimacula* from Folkestone; *Leucania vitellina*, taken at Glynde, near Lewes, September 30th, 1874; *Xylina conformis*, bred; hybrids between *Smerinthus ocellatus* and *populi; Catocala fraxini; Lythra purpuraria; Madopa salicalis; Sophronia emortualis; Diasemia literalis; Dasydia obfuscata; Coremia munitata; Agrotis cinereà; Mellisoblaptes cephalonica; Myelois cinerosella; Scoparia decrepitalis; Hypenodes costæstrigalis*, &c. Mr. Eedle also exhibited a new species of *Coleophora* with the larva-case.

Some fine varieties of the following species were shown:—*Vanessa urticæ; Arctia caja; Scotosia certata*, light, with a dark band; *Cidaria immanata; Mixodia Schulziana; Melanthia rubiginata; Anthocharis cardamines* with the fore-wings only, and those of a peculiar shape; and last, but by no means least in importance, a specimen taken by Mr. Macqueen at light in the New Forest, the specific identity of which was doubtful, though the majority considered it to be *Melanippe unangulata.*

The following were well represented:—*Cucullia gnaphalii, Leucania albipuncta, Erastria venustula, Spilodes palealis, Penthina Staintoniana, Sericoris irriguana, Asthenia cosmophorana*, &c.

Five microscopes where placed in one of the rooms, and were a constant sourec of amusement and instruction to many of the visitors.—HENRY BARTLETT, Secretary.

DESCRIPTIONS OF SIX NEW SPECIES OF DIURNAL *LEPIDOPTERA* IN THE COLLECTION OF THE BRITISH MUSEUM.

BY A. G. BUTLER, F.L.S., F.Z.S.

Genus DANAIS.

The following species, although perfectly constant, and as well marked as any of the insects in the green-spotted group, have been hitherto overlooked by Lepidopterists.

DANAIS SEPTENTRIONIS, *n. sp.*

Danais limniacæ, Butler (*nec* Cramer), P.Z.S., p. 51, n. 34 (1866).
Danais hamata, Butler (*nec* McLeay), P.Z.S., p. 725, n. 3 (1870).

Allied to *D. hamata*, of McLeay, but constantly much larger, the primaries above with the spots on the disc smaller; secondaries olive-brown (instead of chocolate-brown); the streaks beyond the cell, between the sub-costal and radial nervures, narrower, longer, and not notched externally; the brown patch in the cell broader (frequently reaching to the radial nervure without a notch), sub-marginal spots more elongated: primaries below paler than in *D. hamata*, secondaries more cupreous in tint; expanse of wings, 4 inches 5 lines.

India, Nepal, Penang. B. M.

There can be no doubt that this is the Indian representative of the Australian species, *D. hamata*, McLeay (*D. australis*, Bdv.); it is, however, remarkably constant in its characters, although I believe its range is almost the same as that of *D. limniacæ*. I have, from time to time, seen a great many examples, but have never seen any variation.

DANAIS MICROSTICTA, *n. sp.*

♂. *Danais limniacæ*, var., Butler, P.Z.S., p. 51, n. 34 (1866).

Allied to the preceding species, but the primaries narrower; all the spots on the wings very much smaller, all the streaks much narrower; anal exsertile tuft ochreous; expanse of wings, 4 inches 4 lines.

Borneo (*Stevens*). B. M.

I have seen several examples of this species, although we have only one specimen in the British Museum.

DANAIS LEUCOPTERA, *n. sp.*

Allied to *D. hamata*, slightly larger; the discal areas from just beyond the discoidal cells decidedly paler (luteous in the secondaries of the female); all the spots and streaks narrower, and consequently more widely separated, and paler in tint; wings below (particularly in the female) altogether redder in tint; expanse of wings, 3 inches 11 lines.

♂ ♀. Dorey (*Wallace*). B. M.

In some respects this species is more like *D. obscurata* than *D. hamata*.

DANAIS EXPROMPTA, *n. sp.*

Allied to *D. similis*, much smaller, the pale spots and streaks broader at base of wings, and in the series bounding the cell of secondaries; the second and third spots of the postcellular series in primaries considerably smaller; the long cuneiform spot of the outer discal series nearer to apical margin; wings below altogether paler and less coppery in tint; expanse of wings, 3 inches 2 lines.

Ceylon (*Wenham*). B. M.

DANAIS VULGARIS, *n. sp.*

Danais melissa, Doubleday (*nec* Cramer), List Lep. Brit. Mus., 1, p. 49; Gen. Diurn. Lep., p. 92, n. 28.

Allied to *D. similis*, altogether smaller, with all the spots paler and smaller, and all the streaks narrower; the second and third spots of the postcellular series smaller; expanse of wings, 3 inches 3 lines.

Nepal, Bengal, Singapore, Borneo. B. M.

Genus PANOPEA.

PANOPEA PROTRACTA, *n. sp.*

Allied to *P. Tarquinia*, but much larger, the primaries longer; the discoidal spots smaller, the discal spots double as large, a sub-marginal series of squamose whitish internervular spots or strigulæ from sub-apical spots to external angle; apex minutely white spotted; patch on internal margin and band of secondaries deeper in colour; the same wings with a sub-marginal series of squamose whitish strigulæ: body black, white spotted; primaries below paler than above; base of costa to rear end of cell dull orange, a discoidal ochreous streak below it; all the white spots better defined than above, the sub-marginal spots sharply defined merging into sub-apical spots at the upper end of the series; internal patch whitish, wider than above; apex and apical costa dull whitish; secondaries ochreous, becoming gradually brown towards the outer margin, black spots at base as in *P. Tarquinia;* a complete sub-marginal series of elongate-ovate white spots; body black, white spotted, legs and palpi black above, white below; expanse of wings, 3 inches 6 lines.

Cabinda (*Monteiro*). Type B. M.

I should have described this long ago, but we had no examples of *P. Tarquinia* with which to compare it; lately, however, Capt. Shelley presented an example taken by himself at D'Urban; the two species differ most on the upper surface of the primaries and the under surface of the secondaries; the pattern of the under surface is in fact almost exactly that of *P. Lucretia*, but the ground colouring of the secondaries, and the colouring of the upper surface, and the form of the primaries, are very different.

P. protracta is almost as large as *P. dubia*.

British Museum: November, 1874.

NEW *LYCÆNIDÆ* FROM QUEENSLAND.

BY W. H. MISKIN.

The following notes contain descriptions of two species of this charming family, which will, I think, prove new to science: one of these is a *Deudorix*, the other a *Pseudodipsas*. Both are described from specimens in my collection, captured by myself, and in perfect condition.

PSEUDODIPSAS INNOTATUS, *n. sp.*

♂. *Upper-side:* satiny, violet-blue. *Fore-wing:* apex broadly black, narrowing off gradually to hinder angle, and abruptly to centre of costa; lightly fringed with white. *Hind-wing* with narrow black hinder margin, fringed with white, with black spots at termination of nervules.

♀. Black, with disc of fore-wing from base to rather beyond centre light lilac-blue. *Hind-wings* faintly shot with blue, with fringe of white as in ♂. Wings much less angulated than in ♂.

Under-side: both sexes pure white, without markings of any kind, excepting a minute black speck near abdominal margin towards the base.

Eyes beautiful sulphur-green.

Exp., ♂, 11½ lines; ♀, 12½ lines.

Hab.: Brisbane, Queensland.

DEUDORIX SIMSONI, *n. sp.*

♂. *Upper-side:* both wings deep indigo-blue, in front wing increasing in density towards apex and hinder margin, which are nearly black, a darker patch is also perceptible about the centre of wing, and the lobe of posterior wing has a black centre, which is bordered on upper and inner side with a very faint margin of red; between the tail and lobe, a sub-marginal streak of white.

Under-side: shining brown, with broad, sharply defined, dark brown transverse band across both wings at little beyond centre. *Fore-wing:* band commencing from costal margin, but not reaching inner margin, nor quite parallel with hinder margin, having an inclination towards anal angle, quite straight and without white border; a short discoidal band rather indistinct, and touching central band. *Hind-wing:* band straight until reaching elbow, and without white margin, from thence to abdominal margin it is lightly bordered on each side with white; a short, rather indistinct discal band of brown, remote from central band; caudal spot black, surmounted by an almost imperceptible border of red; lobe black, crowned with white; a fine sub-margin of white from lobe to caudal spot; tail black, tipped with white.

♀. Lighter blue than male, of a leaden hue; costal margin black, fore-wings somewhat more rounded than in ♂.

♂ with tuft of strong black hairs on inner margin of front wing on under-side.

Both sexes with scarlet between the eyes.

Exp., ♂, 14 lines; ♀, 16 lines.

Hab.: Port Denison and Brisbane, Queensland.

Brisbane: 18*th March*, 1874.

NOTES ON JAPANESE BUTTERFLIES, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES.

BY THE REV. R. P. MURRAY, M.A.

The insects to which the following observations and descriptions refer were collected by Mr. H. Pryer, mostly in the immediate neighbourhood of Yokohama.

Papilio Dehaani, Feld.—This species, which is probably not distinct from *P. Maacki*, Mén., appears to be not very uncommon, but, from its strong and rapid flight, is difficult to obtain in good condition.

P. Demetrius, Cram.

P. Alcinous, Klug.—There are two forms of this species, one black, the other fawn colour (*P. Mencius*, Feld.).

P. Sarpedon, Linn.

In addition, Mr. Pryer takes the following species: *P. Machaon*, L., *Xuthus*, L., "*Xuthulinus*" (? *Xuthulus*, Brem.), and *Pammon*, L. He sends me the following note on *P. Xuthulinus*: "I believe *Xuthulinus* to be a stunted form of *Xuthus*: the larva and food-plant are "the same, and very strangely, *Xuthulinus* is the only single-brooded "*Papilio* we have here, appearing very early in the year; the larvæ "feed up very rapidly just as the leaves are going off the trees in November, so the question naturally arises, what becomes of them from "April to November? I think the small size is caused by bad and "insufficient food: if I can get time, I will endeavour to breed them "from the egg next spring."

Parnassius glacialis, Butl.—Two specimens from "Neko, about 100 miles north of Tokio." The species does not seem to occur on the mountains near Yokohama.

Anthocaris Scolymus, Butl.

Colias Hyale, Linn.—I have not seen specimens from Japan. Mr. Pryer states that it is extremely abundant both on the plains and on the mountains.

Terias læta, Boisd.—I am inclined to think that the insect described by Ménétries as *T. Jægeri* is the Japanese form of *T. læta*. Certainly the specimens in my collection agree closely with his description and figure.

T. Mandarina, De l'Orza.

T. Hecabe, Linn.

T. Brenda, Doubl., Hew.—This species, which appears to be very common in Japan, was originally described from Western Africa. It is very variable in its appearance, the hind marginal border sometimes presenting a well-marked sinus, as in *T. Hecabe*, which in other cases the sinus is almost (or quite) obsolete. I am inclined to think that it is a form of the extremely variable and widely distributed *T. Hecabe*, L.

Gonepteryx rhamni, L.—I have only seen a single (damaged) specimen of this insect from Japan.

Pieris Melete, Mén.—“Varies considerably” (H. Pryer).

Chrysophanus phlœas, L.—The dark form (*C. Timeus*, Cram., *Eleus*, Fab., *chinensis*, Feld.) is only the summer brood of this species.

Lycæna Argiades, Pall.

L. Argia, Mén.—I think that I have rightly determined the specimens which I have referred to this species, though they all differ slightly from Ménétries' figure and description. The ♀ especially seems liable to vary. In all the specimens which have come under my observation, I notice the following points of difference from the typical *L. Argia*: on the under-side of the anterior wings there is a minute spot below that within the cell, and another on the costa between the first and second sub-costal nervules; on the posterior wings there is a spot on the inner margin near base; none of these are noticed by Ménétries. Above these are six (sometimes seven) marginal dots on the hind-wing instead of five. I do not, however, consider these small differences as of specific value. The insect seems common about Yokohama.

L. JAPONICA, *sp. nov.*

Alis suprà dilute cæruleis, postice brunneo-marginatis: subtus cinereis, nigro-maculatis (maculis albo-marginatis).

Allied to *L. Argia*, Mén.

♀. Wings above rather dull blue, with a narrow brown border to hind margin, well defined interiorly. *Under-side:* wings ash-grey; fore-wing with a discocellular streak, a spot within cell, another below it faintly indicated, and a transverse row of spots crossing the wing beyond the middle; all these markings are black, and are ringed with white. There are two sub-marginal rows of fuscous, rather elongate spots, the exterior very indistinct, and the inner suffusedly white margined, especially interiorly. A very fine fuscous marginal line before the cilia.

Hind-wings: a basal row of three spots, a discocellular streak, and a curved and angulated row of eight spots beyond middle; all these black, ringed with white. A double hind marginal row of indistinct fuscous lunules. Fringe dirty white.

Alar. exp., 1″ 2‴. Hab., Yokohama: Japan.

This species, though very close to *L. Argia*, seems distinct. It differs considerably in coloration, and exhibits no trace of the marginal spots of the hind-wing so conspicuous in *L. Argia*. I only possess a single specimen.

L. Ladonides, De l'Orza.—A single ♂ specimen. This species is very closely allied to *L. Argiolus*, Linn., and I cannot but doubt whether it be distinct.

L. Pryeri, Murray.—I believe that the nearest relationship of this very distinct species is with the *Argiolus* group.

L. Lycormas, Butler.—The only Japanese specimens I have seen are the types in Brit. Mus. I possess examples from Amoorland.

SATSUMA, *gen. nov.*

Oculi sat magni, pilosi.

Palpi valde pilosi, porrecti.

Antennæ graciles, sat longæ, distinctissime albo-annulatæ, in clavam distinctam subito desinentes.

Alæ angulatæ, anticæ venâ sub-costali triramosâ, postice ad angulum analem valde productæ.

Head of moderate size; eyes hairy; palpi moderately long, porrect, densely clothed with long hairs, terminal joint slender: antennæ rather long, slender, white ringed, with distinct fusiform club. Thorax robust. Wings triangular, elbowed on hind margin, especially the hind-wing, which possesses a distinct lobe at anal angle.

Male with a small, almost linear, patch on fore-wing, at extremity of cell, similar to that observed in many species of *Thecla*.

Hind-wings with a distinct groove to receive abdomen. Fringes spotted.

I have founded this genus to receive the curious species described by Mr. A. G. Butler (from a very imperfect specimen) as *Lycæna ferrea*, and which is possibly identical with *Thecla cærulescens*, Motsch., though the very vague description by the latter leaves the point uncertain.

The elbowed form of the wings, together with the strongly developed lobe at the anal angle of hind-wings (which may indicate an affinity to *Deudorix*), at once separate the genus from any other known to me. The neuration seems to be nearly as in *Thecla*, but the second sub-costal nervule of the hind-wings is given off further from the base than in that genus.

Dipsas Attilia, Brem.—I have received two specimens, which I think may be referred to the ♀ of this species. They differ from the description of the ♂ in possessing a rather conspicuous sub-marginal row of bluish-white spots (that at root of tail possesses a black centre) on hind-wings above; between these spots and the margin is a well-marked bluish-white line, divided by the brown nervures.

D. sæpestriata, Hew.

D. lutea, Hew.

DIPSAS JAPONICA, *sp. nov.*

♂. *Alis suprà viridi-micantibus: anticis margine externo nigro; posticis caudatis, late nigro-marginâtis. Subtus brunneis; anticis strigâ transversâ albâ in ramum medianum primum desinente, fasciâque submarginali fuscâ. Posticis strigâ transversâ albâ, apud angulum analem literæ* W *instar, acute angulatâ, lunulis marginalibus albicantibus biseriatis, angulum analem versus maculis duabus fulvis (basin versus nigro-marginatis), ocellos nigros gerentibus, lineâque præciliari albâ. Ciliis albis.*

♀. *Alis suprà brunneis: subtus ut in mare.*

Alar. exp., 1″ 10‴. *Hab. Japoniam.*

Very nearly allied to *D. smaragdina*, Brem. (E. Siberia), from which, however, it seems to me distinct. Judging from Bremer's figure, the two species would seem to be alike on the upper-side; but *D. japonica* differs beneath in the absence of the discocellular markings, and in the transverse white streak of the hind-wing being *acutely* angulated towards the anal angle (not *obtuse*, as Bremer describes *D. smaragdina*). Between the two black spots at the anal angle of hindwing is a third small one, bearing some whitish scales in the middle. There are a few metallic-blue scales on the outer edge of the spot at the anal angle. The orange is continued along the inner margin for a short distance.

DIPSAS ORIENTALIS, *sp. nov.*

♂. *Alis suprà brunneis, anticis ad apicem marginemque exteriorem saturatioribus, maculâ magnâ pallidâ, obliquâ; posticis caudatis. Alis subtus canis: anticis strigâ discocellulari fuscâ, strigâ transversâ albâ basin versus fusco-marginatâ, in ramum medianum primum desinente, maculisque obsoletis præmarginalibus fuscis, albo-marginatis: posticis strigâ discocellulari obsoletâ fuscâ, strigâ transversâ albâ, basin versus fusco-marginatâ, apud angulum analem literæ* W *instar obtuse angulatâ, lunulis præmarginalibus albis biseriatis, maculâ elongatâ marginis interioris (prope angulum analem) maculâque ad caudæ radicem nigro-pupillatâ, fulvis, lineâque præciliari albâ.*

Alar. exp., 1″ 7‴. *Hab. Japoniam.*

Very closely allied to *D. Taxila*, Brem. The fore-wings are brown, darker at the apex, and along the hind margin, and possess in the male a yellowish square patch at the end of the cell, which is continued obliquely in the direction of a point on the hind margin a little above the anal angle. This portion is ill-defined. On the under-side, the pattern of the wings much resembles that of *D. Taxila*, but the transverse streak of fore-wing is longer than in that species (judging from Bremer's figure), and the streak on the hind-wing is distinctly angulated in the form of a W, which does not appear to be the case in the allied species.

AMBLYPODIA JAPONICA, *sp. nov.*

Alis suprà violaceo-cæruleis, late nigro-marginatis, anticis ad apicem subfalcatis, posticis ecaudatis: alis omnibus subtus brumeis, strigis fasciisque saturatioribus.
Alar. exp., 1″ 6‴. *Hab. Japoniam.*

Nearly allied to *A. Rama*, Koll., but abundantly distinct therefrom. The fore-wings are more produced at the apex than in *A. Rama*, and the hind-wings are completely destitute of a tail.

All the wings are above of a rich dark blue, widely black bordered, with only a trace of discocellular streaks. *Under-side:* brown, whitish along inner margin of fore-wing. *Fore-wing:* an oblong mark closing cell, a spot within cell, a spot below each of these, a transverse sub-macular fascia beyond middle, bent on first median nervure, a series of lunules along the hind margin, and a line before the fringe darker brown. *Hind-wings:* markings very indistinct: a basal row of three minute blackish dots, followed by a transverse band of hardly perceptible brown spots; a rather large outlined discocellular mark; a transverse macular band, the spots composing which (except the two nearest the costa) are only outlined with darker; and a sub-marginal row of crescents, edged interiorly near anal angle by greyish-blue scales. Fringe shining brown. All the dark markings of the under-side are faintly and very narrowly edged with lighter brown.

Libythea Lepita, Moore.—Cannot be distinguished from Himalayan examples.

Neptis aceris, Lep.—Cannot be separated from the European species.

Euripus Charonda, Hew.

E. japonica, Feld. (*Diagoras*, Hew.).

Argynnis Sagana, Doubl., Hew.

A. Ella, Brem.

A. Laodice, Pall., var. *japonica*, Mén.

A. pallescens, Butl. ?—I am somewhat doubtful about this species, which I am almost inclined to regard as a variety of *A. Adippe*, W. V. The two specimens now before me (♂) are much larger and more richly coloured than Mr. Butler represents his *A. pallescens*, and indeed, agree more closely in some respects with his *A. vorax* (Shanghai), especially in the shape of the fore-wings, but they possess the three sub-apical silver spots on the under-side of fore-wing, mentioned as one of the points in which *A. pallescens* differs from *A. vorax*. Probably both these forms are local varieties of *A. Adippe*.

Pyrameis indica, Herbst.

P. cardui, Linn.—I have not seen Japanese specimens.

Vanessa Glauconia, Motsch.—Appears to me only a local form of *V. Charonia*, Drury.

V. xanthomelas, W. V.

V. c-aureum, Linn.

Lethe Sicelis, Hew.

Neope Goschkevitschi, Mén.

Satyrus Phædra, Linn., var. *bipunctatus*, Motsch.

Ypthima Argus, Butl. ?.

Mycalesis Gotama, Moore.

M. Perdiceas, Hew.

Pyrgus maculatus, Mén.

DAIMIO, *gen. nov.*

Antennæ costæ medium superantes, gracillimæ, clavâ fusiformi, hamatâ. Palpi sat breves, squamosi, articulo ultimo distincto.

I have very briefly characterised this genus, which only contains, at present, a single species, *D. Tethys*, Mén. Hitherto this insect has been associated doubtfully with *Pyrgus* (sect. *Erynnis*) or with *Nisoniades*, but it differs considerably from both in structure. The antennæ are long and very slender, and terminate in a gradually formed hooked fusiform club. They are provided with a tuft of hair at the base. The palpi have the second joint covered beneath with squamous scales, whilst the terminal joint is scantily clothed with short hairs. The fore-wings of the male appear to be destitute of the costal fold found both in *Pyrgus* and *Nisoniades*.

D. Tethys, Mén.

Nisoniades montanus, Brem.

Pamphila Dara, Koll. ?—I am doubtful about the identity of the Japanese insect with this Himalayan form; but Indian examples in Brit. Mus. (so named) come very close to those sent by Mr. Pryer.

PAMPHILA VITREA, *sp. nov.* (?).

Alis suprà brunneis, basin versus (præsertim posticis) fusco-pilosis, anticis maculâ sub-apicali pellucidâ tripartitâ, maculâ discocellulari pellucidâ super alteram magnam quadratam, maculâ pallide albo-flavescente subopacâ in venam sub-medianam, maculâque pellucidâ minore inter ramos medianos superiores. Posticis immaculatis.

Subtus alis anticis brunneis, costâ apiceque ochraceis, maculis ut in paginâ superiore, strigâque pellucidâ obliquâ maculas quadratam sub-medianamque attingente. Posticis ochraceis, maculis novem albis brunneo-marginatis, conspicuis. Ciliis albis.

Alar. exp., 1″ 7‴. ***Hab. Japoniam.***

A distinct and well marked species.

P. guttata, Brem., Grey.

PAMPHILA VARIA, *sp. nov.* (?).

♂. *Alis suprà brunneis, anticis margine exteriore rectiusculâ, maculis quatuor minimis (unâ in cellulâ elongatâ). Posticis immaculatis. Alis subtus ochraceis (anticis ad marginem interiorem brunneis), venis nigris, anticis maculis duabus discocellularibus (inferiore majore), alteris duabus in regione exteriore, maculâ sub-apicali tripartitâ, lineâque anteciliari nigrâ. Posticis maculâ obsoletâ basali, maculâ inter ramos sub-costales sub-flavâ, alteris duabus inter ramos medianos, lineâque anteciliari nigrâ. Ciliis albis, ad apicem anticarum obsolete nigro-maculatis.*

♀. *Alis anticis (margine exteriore convexâ) maculis conspicuis (duabus discocellularibus) maculâ sub-apicali tripartitâ, alteris duabus in regione exteriore, strigâque minimâ super marginem interiorem. Posticis immaculatis. Subtus ut in mare. Ciliis albis, ad apicem anticarum nigro-maculatis.*

Alar. exp., ♂, 1″ 4‴: ♀, 1″ 6‴. *Hab. Japoniam.*

I believe that the insects above described may be sexes of one species, on account of the similarity of the markings of the under-side. It is, however, possible that they are specifically distinct. Only one male has fallen under my observation, but two females now before me differ somewhat on the under-side of the hind-wing, one of them possessing an additional spot between the costal vein and first sub-costal nervule. There is a tendency in both sexes towards the formation on the under-side of both wings of a sub-marginal row of yellow spots.

I have described the hind-wing as spotless above, but in both the females there is an appearance of a very minute central spot. I think, however, that this is accidental, and has been caused in the process of setting.

PAMPHILA PELLUCIDA, *sp. nov.* (?).

Alis suprà brunneis, albo-maculatis: anticis maculis duabus discocellularibus super alteram exteriorem magnam quadratam, maculâ sub-apicali tripartitâ, alteris duabus inter maculas sub-apicalem et quadratam, strigâque parvâ in venâ submedianâ (maculis omnibus pellucidis). Posticis maculis quatuor pellucidis, fasciam brevem formantibus.

Subtus, alis ochraceo-brunneis, anticis ad marginem interiorem nigro-fuscis, maculis ut in paginâ superiore. Ciliis albis.

Alar. exp., 1″ 9‴. *Hab. Japoniam.*

Allied to *P. guttata*, Brem., Grey, but sufficiently distinct. The spots on the hind-wing are arranged in a curious alternate manner, the first and third being nearer the hind margin than the second and fourth.

The above notes relate only to insects in my own collection, and do not pretend to form anything like a complete list of the butterflies of Yokohama. I believe that Mr. Pryer is now engaged in the compilation of such a list, to the appearance of which I look forward with much interest.

Beckenham, Kent: November, 1874.

BRITISH *HEMIPTERA*—ADDITIONAL SPECIES.

BY J. W. DOUGLAS AND JOHN SCOTT.

(continued from page 147.)

TINGIDINA.

TINGIDIDÆ.

ORTHOSTIRA MACROPHTHALMA.

Orthostira macrophthalma, Fieb., Ent. Monogr., 49, pl. 4, fig. 4 (1844); J. Sahlb., E. M. Mag., x, 243, 4 (1874).
„ *pusilla*, Fieb., Eur. Hem., 131, 8 (1861), ? Fall.
„ *cylindricornis*, Thoms., Opusc., iv, 401, 4 (1871).

Undeveloped form.—Broad-ovate, reticulate, dingy light brown. *Antennæ* black, third joint cylindrical, scarcely thickened at the apex. *Pronotum:* hood short, transverse, rhomboidal; side margins broad, with 2½ rows of meshes, circumference rounded. *Elytra:* sutural area with 2 rows, discoidal cell with 4 rows, exterior area with 3 to 4 indistinct rows, and the margin with one row of meshes.

Head black; the two spines on the crown short, stout, slightly divergent, black, brown at the apex. *Antennæ* black; the long third joint cylindrical, very slightly thickened towards the apex; fourth stout, short-fusiform, thickly clothed with fine long hairs. *Eyes* dark ferruginous. *Rostrum* yellowish-brown; rostral channel exteriorly broadly pale yellowish.

Thorax—pronotum short-subcordate, anterior half black, punctured; hood pale brownish, with dark reticulation, short, convex, transverse, rhomboidal, projecting but little over the head, obscurely carinate, with irregular small reticulate foveæ, of which there are three to four in the front row, two to three in the second, and one in the third, on each side of the blackish keel; side margins reflexed, transparent, broad, circumference rounded (the anterior and posterior angles being broadly rounded off), with two entire rows of transverse, long-oval meshes, seven or eight being in the outer, and six in the inner one, and between the rows, on the anterior half only, one or two small, irregular cells, the divisional lines black; the three discoidal keels deep, transparent, the middle one deepest, straight, and reaching on to the hood, with six to seven right-angled meshes, the side keels not so deep, sub-parallel, abruptly shortened in front, with five to six meshes, similar to those of the middle keel; scutellum process short, pale brownish, foveate posteriorly exterior to the side keels. *Elytra* with foveate reticulation, four rows of meshes in the discoidal cell, of which latter the margins are much raised; two rows in the sutural area, and three to four in the exterior at the widest part; side margins reflexed, transparent, narrow, with one row of sub-quadrangular meshes. *Sternum* black, finely punctured; prosternum anteriorly, metasternum posteriorly broadly, and base of coxæ less distinctly, pale yellowish. *Legs—coxæ* and *thighs* pitchy-black, paler at base and apex; *tibiæ* and *tarsi* yellowish-brown, the apex of the latter piceous.

Abdomen black. Length 1¼ line.

The synonymy is extremely confused. Fieber, in the Eur. Hem., 131, 8 (1861), says that his *O. macrophthalma*=*Tingis pusilla*, Fall., and in Wien. Ent. Monats., vii, 56 (1863), adds=Monanthia cinerea

Flor, *neo* Fieb., *O. cinerea*, Fieb., being *Tingis nigrina*, Fall.,=*M. intermedia*, Flor (the last, however, is reckoned by Thomson as=*O. platychila*, Fieb., *vide* E. M. Mag., x, 187, 2, and 243, 2). Thomson, Opusc. Ent., iv, 400, 3, says that *T. pusilla*, Fall.,=*O. pusilla*, Fieb.,= *T. nigrina*, Fall.; he takes no notice of *O. macrophthalma*, Fieb., but describes the species as new, under the name of *O. cylindricornis*.

Dr. J. Sahlberg has kindly sent me exponents of *O. macrophthalma* and *O. nigrina*, Fall., which appear to be distinct species, the former having black antennæ, and only 2 rows of reticulation on the sutural area of the elytra; the latter having the antennæ thinner, and the 2nd joint reddish-yellow, and the elytra with 3 rows of reticulation on the sutural area, both being otherwise very much alike. It seems, therefore, that, as there is no doubt our species is *O. macrophthalma*, Fieb., the only safe way at present is to adopt this name, leaving the synonymy to be investigated hereafter.

A single example of the undeveloped form, from the collection of the late Mr. T. J. Bold, was taken by Mr. J. Hardy, in moss on Cheviot, in August. It is the species recorded as *O. cervina* in the "Natural History Transactions of Northumberland and Durham," p. 354, 24 (1872), as I was informed by Mr. Bold.

ANTHOCORINA.

ANTHOCORIDÆ.

PIESTOSTETHUS FORMICETORUM.

Anthocoris formicetorum, Boh., Oef. k. Vet. Ak. Förh., 158, 23 (1844).
Xylocoris formiceticola, Sahlb., Geoc. Fenn., 82, 6 (1848).
Xylocoris formicetorum, Bär., Ent. Zeits., i, 195 (1858).
Piezostethus formicetorum, Fieb., Eur. Hem., 139, 2 (1861).

Pitchy-black, shining, finely pubescent; *elytra* dingy whitish; *legs* stout, dingy whitish.

Head: middle lobe pale; *antennæ* delicately pilose, 1st joint thickest, piceous, 2nd less thick, dingy whitish on the basal half, the rest fusco-piceous, 3rd and 4th thin, fusco-piceous.

Thorax — *pronotum* pitchy-black, faintly punctulate, more strongly posteriorly, covered with very fine short pubescence. *Scutellum* concolorous with the pronotum, in the middle a wide fovea. *Elytra, clavus*, and *corium* dingy whitish, clothed with fine, short, pale hairs, *clavus* inner and posterior margins with a piceous line, *corium* shaded with fuscous posteriorly. *Membrane* ample, hyaline, iridescent, the neuration difficult to see. *Legs* strong, dingy whitish; *thighs* infuscated; posterior *tibiæ* with stout, projecting hairs; *tarsi:* last joint piceous.

Abdomen black, beneath finely pilose. Length ¾ line.

Found by Dr. Buchanan White at Braemar, in nests of *Formica rufa*, a similar habitat to that in which it was first taken by Boheman.

Lee: November, 1874.

NOTES ON THE HABITS OF *CICADA GIGAS.*

BY GERVASE F. MATHEW, R.N., F.L.S., &c.

After lying for a week off Panama, and nearly five miles from the shore, we were not at all sorry on the afternoon of the 27th February, 1874, to raise our anchor, and, favoured by the afternoon breeze, drop down under sail to the island of Tobago, where we arrived at six o'clock and took up a position within a convenient distance of the landing place. Soon afterwards, while standing on deck admiring the beauties of the island with its immense profusion of tropical trees and shrubs, and the varied hue of their foliage, I suddenly heard, clear and shrill, through the evening air, a whistle, as distinct as that of a locomotive, and turned at once and looked in the direction from whence it came, expecting to see a steamboat or the chimney of some factory on shore, but nothing of the kind was visible. The whistling continued more or less until sunset, when it gradually ceased. Upon enquiring of one of the natives what this was caused by, he informed me it was the cry of the "tree locust," and, being unacquainted with any locust capable of producing such a noise, I determined to work out the history of the creature during our stay off the island, and as we were there for just a month, I had a pretty good opportunity of so doing. In the first place, I of course soon found out that the whistling was created, not by a "locust," but by a *Cicada*, although it was some days before I was actually able to capture an individual, on account of the individuals that were out when we first arrived at the island frequenting the topmost boughs of the loftiest trees. Moreover, they were not at that time nearly so numerous as they afterwards became, for, before we left, on the 24th March, they were out in great numbers, and had also, to a certain degree, altered their habits, and were often to be seen flying near the ground, or sitting on trunks of trees within easy reach, especially just before dusk or when the weather was at all damp and gloomy.

The first day I went on shore, although I heard them in the trees above me, I could not see them, and it was only when they became more plentiful that they seemed to move about much, and I was able to capture a few and note their habits. This creature, considering its size, is gifted with a wonderfully powerful and peculiar voice—if I may so term it. Let my reader suppose he is standing in some secluded spot in a forest with lofty trees all round him. There is not a breath of air stirring, and hardly a sound, save, perhaps, the hum of a wandering bee, the whirr of a passing humming-bird, or the rustle of a lizard amongst the dead leaves, to interrupt the oppressive stillness of a tropical afternoon. Suddenly, from right above, you hear one or two hoarse, monotonous cries something like the croak of a tree-frog, and, looking upwards, wonder what it can be, but wait a moment, this is merely a signal, for the next minute everywhere above and around you these croaks are repeated in rapid and increasing succession until they merge into a long shrill whistle almost exactly similar to the whistle of a first-rate locomotive; this continues for nearly half a minute, and then abruptly terminates, and everything for a short time becomes as still as before, but presently, similar cries will be heard in the far distance, as if in reply to those which have just died away overhead. This whistling pierces one's ears to such a degree that its vibrations can be felt long after it has ceased.

These *Cicadæ* must be able to keep time with marvellous regularity, for the noise they make, and it really cannot be called by any other name, is evidently the combined efforts of a whole colony, although a single insect is able to produce a very shrill cry. I kept a few in confinement several days in the hope that I might be able to observe them while in the act of whistling, but they remained silent in a most obstinate manner, and could only be prevailed on to croak when they were touched or otherwise annoyed. One day, however, while shooting humming-birds, I heard a *Cicada* in full whistle on a neighbouring cocoa-nut tree, and upon looking in the direction from whence the cries proceeded, observed the creature on the trunk of the tree, about fifteen feet from the ground. It was then silent, but in the course of a few moments it began its short hoarse cries, and, while so doing, remained perfectly motionless; but, as soon as the whistling commenced, it raised its abdomen, and, with a slightly tremulous movement, walked steadily backwards until its song had ceased, when it halted: I then fired at it with my little walking-stick gun and brought it down. It was a fine specimen, and none the worse for two or three dust shot through its thorax.

These insects frequent by preference trees growing in ravines where the soil is generally soft and damp, and in which their larvæ and pupæ find no difficulty in burrowing. When the latter are full grown and ready for their last transformation, they emerge from the ground and crawl about four or five feet up the trunk of a tree, when they firmly fix themselves to the bark by means of their powerfully hooked fore tibiæ. In a short time the pupa-case splits down the middle of the back, and the perfect creature walks out. Trees possessing a rough bark are usually selected, and on some I noticed many dozens of these empty cases. The flight of the mature *Cicada* is abrupt, rapid, and by no means graceful; and it does not appear to have the power of controlling itself when on the wing, for I have often seen it fly in an insane manner against the trunk of a tree, a branch, or any other object that may be in its line of flight; and when it has performed its journey without any accident, it alights abruptly and awkwardly. As a rule, however, it does not attempt to fly to any great distance at a time.

Difference of temperature affects them considerably, for in hot sultry weather they were most vociferous, whereas when it was (comparatively speaking) cool and breezy they were almost silent. I did not observe any of the females in the act of oviposition.

H. M. S. "Britannia," Dartmouth:
14th December, 1874.

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS OF NEW SPECIES (No. 19).

BY H. W. BATES, F.L.S., &c.

SCARITES (HAPLOTRACHELUS) POLYPLEURUS, *sp. n.*

Latus, oblongo-ovatus, modice convexus, niger, sub-opacus; thorace lunato, lateribus utrinque basin versus paululum sinuatis; elytris ovatis, utrinque costis 8 *lævibus* (*octava marginali acutissima*) *interstitiis granulatis, striato-punctulatis.* *Long.* 17 *lin.*

Rather more ovate in form than *H. holcopleurus* and *patruelis*, and differing conspicuously in the sculpture of the elytra. On each elytron there are seven narrow, slightly raised and smooth lines, besides the very strongly raised carina of the 8th interstice; the sutural and 7th lines are less distinct than the others, and all terminate before the apex; the broad interstices between the raised lines are minutely granulate and opaque, as is also the apical surface, and there are traces of two rows of small punctures down each interstice. The head is of the same form as in *H. patruelis;* but the mandibles are nearly smooth. The thorax is of a half-moon shape, twice as broad as long, with advanced anterior angles; but it is not regularly rounded behind, the sides being obliquely sinuated, and tending to form a rather distinct basal lobe; the anterior transverse line unites at the apical angles with the marginal sulcus.

Caffraria (Mr. Gerrard); four examples.

SCARITES (HAPLOTRACHELUS) LATESULCATUS, *sp. n.*

Angustior, niger, minus nitidus; mandibulis suprà multicarinatis, *vix striatis; thorace transversim quadrato, basi paululum late lobato; elytris ovatis, sulcis septem modice impressis transversim rugosis, carinâque validâ laterali.* *Long.* 15 *lin.*

Much narrower than the allied species; dull black, slightly shining. Mandibles with the usual longitudinal carinæ (four on the right mandible) much more strongly pronounced than in *H. holcopleurus* and *polypleurus;* the oblique striæ moderately distinct. Thorax rather longer and narrower (6 millim. long, 9½ millim. broad), with more parallel sides; but hind angles much rounded, with a very short but distinct broad basal lobe. Elytra rather narrower than the thorax, elongate-ovate; marked each with seven broadish furrows, becoming gradually deeper from the suture to the side, and roughened with transverse wrinkles; none of them quite reach the apex, where the surface is even and minutely coriaceous. The lateral carina projects throughout beyond the margin, and conceals it when viewed from above.

Caffraria (Mr. Gerrard); two examples.

SCARITES (HAPLOTRACHELUS) PUNCTULIGER, *sp. n.*

Elongato-subovatus, niger, obscurus, modice nitidus; elytris punctato-striatis, striis exterioribus profundius impressis, interstitio septimo punctis magnis setiferis. *Long.* 10 *lin.*

Similar in form to *H. capicola*, but of a duller black, and distinguished further by the sharp lateral carina, which, however, does not overtop the margin on the apical half of the elytra. The striæ are all distinctly punctulate, and the interstices convex, but they become blended before the apex, where the surface is rugulose; the 7th interstice (before the carina) has a row of long setiferous punctures, and the 3rd has two large punctures near the apex. The mandibles are peculiar, in having the longitudinal carinæ effaced. The thorax is nearly semilunate, the sides nearly parallel, and the base is broadly and angularly rounded; the anterior transverse line is very strongly impressed. The anterior tibiæ have two denticulations above the third digitation.

Graham's Town, S. Africa; one example.

SCARITES (HAPLOTRACHELUS ?) ATROPIS, *sp. n.*

Sub-cylindricus, niger, nitidus; thorace quadrato, postice valde rotundato; elytris subtiliter striatis, striis exterioribus profundius impressis ibique interstitiis angustioribus, interstitio tertio 4-punctato, octavo latissimo, lævi. *Long.* 10½ *lin.*

Resembling in general form and in the shape of the thorax *Scarites* *inermis* (Chaud.), *rugiceps* and others of the same section, but differing from the genus *Scarites* by the obtuse and rounded tip of the maxillæ, and in the relatively short penultimate joint of the maxillary palpi, in which characters (and the untoothed thorax) it agrees with *Haplotrachelus*. It differs from this genus in the absence of raised carina along the margins of the elytra; but the exterior edge of the 7th striæ is slightly raised throughout, and this may be considered as the carina in a rudimentary form. The general colour is deep glossy-black. The head much resembles that of *H. capicola*, the mandibles are strongly carinated and striated, but the furrow between the two principal carinæ is simply granulate at the base. The front of the head is strongly striated, the eyes are encased behind in an orbit which is at least as prominent as the eye. The thorax is of the more elongate form of *H. inermis;* it has a marginal row of seven or eight setiform punctures on each side; the anterior transverse impression is very sharply marked. The elytra have each seven fine striæ, punctured only at the apex; the dorsal interstices are plane, the lateral ones slightly convex and narrower; the third has four or five large setiferous punctures, the first very near the base, the second in the middle; the eighth interstice is unusually broad; it is steeply sloping to the margin and very smooth, except in the marginal groove, which has a few fine granules mixed with usual row of larger ones. The shoulders of the elytra have no trace of the usual tooth, and are rounded to the pedicel; the base has a few large granules. The anterior tibiæ have four denticulations above the third digitation; the middle tibiæ are unispinose.

Caffraria (Mr. Gerrard); one example.

SCARITES (GLYPTOGRUS) INSCULPTUS, *sp. n.*

Elongato-oblongus, depressus, niger; capite magno, lævi; mandibulis vix striatis; maxillis obtusis; palpis articulo penultimo multo breviori; thorace postice dentato, basi valde lobato; elytris sub-parallelis, dorso seriatim foveolatis, utrinque tricostatis, et lateribus carinatis.

Long. 15½ *lin.*

A species differing in essential points from all genera or groups hitherto defined. It agrees best with the typical *Tæniolobi*, but differs in the blunt apices of the maxillæ. From *Haplotrachelus*, *Dyscherus*, &c., it differs in the form and dentation of the thorax. The antennæ are peculiar also, in being of unusual length and stoutness, the exterior joints being elongate and robust. The mentum is transverse-quadrate, with the side lobes broad and truncated, and shorter than the central tooth; its surface is sprinkled with granules, and there are only slight traces of the central and lateral carinæ; the cheeks flanking the mentum are also unusually short, and are strongly sinuated. The mandibles are normal, except that the inner edges do not form distinct conical teeth. The frontal furrows are well marked, but there are scarcely any traces of striæ; the posterior orbits project further than the eyes. The thorax is broader than the head, the anterior angles advanced and acute, the sides narrowing very abruptly and with a strong sinuation to the basal lobe, which is almost rectangular and sinuated in the middle; the surface is flattish and smooth, with the anterior transverse line impressed only (and very vaguely) near the angles. The elytra are oblong and depressed, with slightly oblique and toothed shoulders; the surface is marked by rows of large punctures, extending quite to the apex, and on each elytron three narrow, strongly raised lines, besides the lateral carina, which completely overtops the more than vertical and smooth epipleuræ; punctures and ridges arise alike from a straight basal ridge, from which there is a vertical declivity, strongly granulated, to the pedicel; the suture is not raised, and the three ridges are uninterrupted, except near the apex. The anterior tibiæ have no denticulation above the third digitation; the middle tibiæ have two external spines, the upper one short and stout.

The many well-marked peculiarities of this fine species necessitate the formation of a group (equivalent to *Haplotrachelus*, *Tæniolobus*, &c.) for its reception, to which the name *Glyptogrus* may be applied. It is evidently allied to *S. glypticus*, Perty (erroneously placed as a synonym of *S. excavatus*, Kirby), but the elytral sculpture differs much from Perty's description.

Bahia (Edwyn C. Reed); two examples.

(*To be continued*).

DESCRIPTIONS OF NEW SPECIES OF *EUMORPHUS* & *CORYNOMALUS*.

BY THE REV. H. S. GORHAM.

Genus EUMORPHUS, Weber (Sec. C, a, Gerst.).

EUMORPHUS ANDAMANENSIS, *sp. n.*

Oblongus, nigro-piceus, sub-opacus, elytris sub-parallelis maculis duabus transversis flavis, femoribus (basi exceptâ) testaceis.

Long. lin. 6, ♂ ♀.

Mas: tibiis anticis dente infra medium distante, intermediis dente parvo triangulari, sub-apicali, armatis; his apice incurvatis. Fœmina: elytris margine ad apicem productâ.

Head finely and thickly punctured between the eyes, palpi black. Thorax nearly opaque, disc even, the middle channelled throughout its length, hind angles acute, and not much more produced in the male than in the female; sides sinuous, narrowed towards the front. Elytra a little shining, very finely and obsoletely punctured, and finely coriaceous between the punctures, of a dull leaden black, the usual yellow spots are transverse and rather irregular in shape, the hinder one being more quadrate than the front one: their sides are almost parallel, but slightly widened (in the male) till near the apical spot, the apex of each is rounded separately. In the female the sides are narrowed from the middle, and the apical portion of the elytra is depressed and produced in a manner I do not observe in any other species of the genus, but which (in a less degree) may be seen in *convexicollis*, ♀. Antennæ black, rather long. Legs pitchy-black, apical half of the femora testaceous.

Hab., Andaman Isles.

This species comes in the same section as *pulchripes*, Gerst., but cannot be confounded with it. It is considerably larger, the legs are differently coloured, the tooth on the anterior tibiæ is larger and stands out, and is also *below* the middle, not above as in that species.

Genus CORYNOMALUS (Dej.), Erichson.

CORYNOMALUS TÆDIFER, *sp. n.*

Niger, opacus, elytris obsolete punctatis, nigris, vel nigro-cæruleis, thorace quadrato; antennis clavâ totâ testaceâ. *Long. lin.* 4, ♀.

Head slightly shining, with a few scattered punctures, and with the mouth-organs entirely black. Thorax hardly wider than long (if the anterior angles are included), opaque, disc uneven, the usual impressed sulci and basal line, and a channel in the middle reaching neither base nor front margin. Elytra opaque, black (in my specimen with a faint greenish tint), with scattered, obsolete and flat-bottomed punctures, margin with larger ones, sub-quadrate, and very convex; under-side of body and legs shining, entirely black. Antennæ black, with the club (which is clothed with a fine pubescence) wholly testaceous.

Hab., Peru. In my own collection, from Deyrolle.

This curious *Corynomalus* is unlike any species in the genus except *tarsatus*, Er., of which I thought it might be a variety. The examination of a specimen of *tarsatus* brought by Mr. Edward Bartlett from Peru, enables me to describe it as quite distinct. From *tarsatus* it is readily distinguished by having the tarsi *black*, and the *whole* of the club of the antennæ red, as well as by its general colour. I have, I believe, seen it in other collections with the elytra bluer than in my specimen.

Shipley: *December*, 1874.

DESCRIPTIONS OF SIX NEW SPECIES OF BUTTERFLIES FROM SOUTH AMERICA, WEST AFRICA, AND BORNEO.

BY W. C. HEWITSON, F.L.S.

Heliconia Longarena.

Upper-side : black. Both wings crossed near the outer margin by a series of longitudinally bifid pale yellow spots, irregular on the anterior wing, where it commences near the costal margin by three spots; regular on the posterior wing, where it is composed of seven spots. Anterior wing with a large scarlet spot from the base, divided into three parts by the median nervure and its first branch; an oblique band of three pale yellow spots at the middle, the first spot near the costal margin trifid, the third bifid, all more or less irrorated with brown. Posterior wing crossed near the base by a broad scarlet band.

Under-side : as above, except that the base of the costal margin of the anterior wing is orange; the base of the posterior wing yellow, succeeded by orange.

Exp., $3\frac{8}{10}$ inch. Hab., New Granada.

I am indebted to Mr. James Backhouse of York for this very beautiful species. It belongs to the *Hecalesia* group.

Heliconia Gynæsia.

Upper-side : black. Both wings crossed near the outer margin by a series of pale yellow spots; irregular in size on the anterior wing, regular, seven in number, and caudate on the posterior wing. Anterior wing with a trifid spot at the middle of the costal margin, a larger trifid spot below this, and a pyriform spot between the first and second branches of the median nervure all yellow. Posterior wing crossed near the base by a broad band of orange.

Under-side : as above, except that the base of the costal margin of the anterior wing is yellow; the base of the posterior wing orange.

Exp., $3\frac{6}{10}$ inch.

Also of the *Hecalesia* group. I purchased it at the sale of the Norris collection, and I do not know its locality.

Iolaus Cytæis.

Upper-side : ♂, cerulean-blue. Anterior wing with the costal margin rufous-brown; the apical half dark brown, the inner margin convex. Posterior wing with two tails; the apex brown, the outer *margin black,* narrow.

Under-side: white; both wings crossed beyond the middle by a linear brown band, and by a sub-marginal very indistinct rufous band. Anterior wing with the outer margin rufous. Posterior wing with the lobe and caudal spot black, broadly bordered with orange, the outer margin black.

Exp., $1\frac{7}{20}$ inch. Hab., Fernando Po (Rogers).

Much like some of the Indian species.

In my own collection.

LIPHYRA VININGA.

Upper-side: ♀, indigo-blue. Anterior wing pointed at the apex, sinuated below, convex on the outer margin, the costal and outer margins dark brown, broad. Posterior wing angular at the middle of the outer margin, which is dark brown and narrow.

Under-side: grey-brown, paler towards the outer margins.

Exp., $1\frac{7}{20}$ inch. Hab., Fernando Po (Rogers).

In my own collection.

ADOLIAS CENESPOLIS.

Upper-side: ♀, pale rufous-brown, tinted with lilac beyond the middle. Both wings crossed at the middle by a common band of white spots, smaller towards the inner margin of the posterior wing: both crossed beyond the middle by a band of hastate black spots bordered below with white; the outer margin of both dark brown. Anterior wing with a brown spot bordered with black at the end of the cell: the costal margin and apex broadly dark brown marked by a small white spot between the transverse bands.

Under-side: as above, except that it is much paler and pearly-white beyond the middle; that the anterior wing has a round spot within the cell; that the posterior wing has a smaller spot within the cell, and a spot bordered with brown at the end of the cell.

Exp., $3\frac{8}{10}$ inch. Hab., Borneo.

In the collection of Henley G. Smith, Esq.

In form like *A. Teuta*, but quite unlike any known species.

ERGOLIS ACTISANES.

Upper-side: ♂, dark rufous-brown. Both wings crossed near the base and the middle by red-brown bands, bordered on both sides with dark brown; both crossed beyond the middle by lunular dark brown spots, bordered on both sides by a linear band of brown; both with a sub-marginal line of black. Anterior wing with two lines in the cell, and two at the end of the cell, dark brown.

Under-side: as above, except as the transverse bands are suffused with dark brown, and that the anterior wing has a sub-apical white spot.

Female like the male but paler, with a white sub-apical spot on the anterior wing.

Exp., 2$\frac{1}{16}$ inch.

In my own collection, from the Gaboon (Rogers) and Cameroons (Rutherford).

The largest known species in this genus.

Oatlands, Weybridge:
November, 1874.

HEMIPTERA: SYNONYMIC NOTES.

BERYTINA.

BERYTUS MINOR, H.-Schf.

Berytus commutatus (Fieb.), D. & S., Brit. Hem., i, 158, 7 (1865).

The latter was retained as distinct in deference to the views of Fieber, but we now believe, as indeed we hinted at the time it was described (*op. cit.* p. 160), that it is only *B. minor.*

LYGÆINA.

DRYMUS PILICORNIS.

Pachymerus pilicornis, Muls., Opusc., i, 118 (1852).
Rhyparochromus pilicornis, D. & S., Brit. Hem., i, 202, 1 (1865).
Drymus latus, D. & S., Ent. Mo. Mag., viii, 25 (1871).

When the insect was described under the last name, its identity with Mulsant's species was overlooked, but it was rightly determined as a *Drymus.* The original example was returned to us by Fieber as *P. pilicornis*, Mulsant.

LAMPROPLAX PICEUS.

Pachymerus piceus, Flor, Rhyn. Liv., i, 251, 12 (1860).
Megalonotus piceus, Fieb., Ent. Monats., vii, 55 (1863).
Lamproplax Sharpi, D. & S., Ent. Mo. Mag., iv, 244 (1868).

The correctness of the suspicion expressed by us (Ent. Mo. Mag., iv, 265) that this species might prove to be Flor's *P. piceus*, is verified by Dr. J. Sahlberg, who writes to us, "*Lamp. Sharpi* agrees well with Flor's *Pachym. piceus*, and appears "without doubt to be the same species."

STETHOTROPIS INCANA, Fieb., Verh. k. k. Zool.-bot. Gesells., xx, 245, t. 5, fig. 8 (1870); D. & S., Ent. Mo. Mag., vi, 241 (1870), = *Stygnocoris rusticus*, Fall, D. & S., Brit. Hem., i, 214, 1 (1865).

The original specimen from which Fieber made his figure, and deduced the characters of his genus *Stethotropis*, proves to be only the macropterous form of *Stygnocoris rusticus.* The insect is altogether more robust than the ordinary brachypterous form, the pronotum especially differing in being more convex, scarcely constricted at the sides, and, therefore, more regularly trapezoidal, the antennæ and legs are also *darker in colour. Fieber's* genus will not stand.

HYPNOPHILUS, D. & S., Brit. Hem., i, 208 (1865).

This generic name having been employed before, *Hypnobius* is now proposed as a substitute.

PACHYMERUS.

In the Oef. k. vet. Ak. Förh., 57, 47 (1872), Professor Stål has revived the name *Pachymerus*, St. F. & Serville, for a genus of *Lygæina*, but Amyot & Serville in their "Hist. nat. des Insectes—Hémiptéres," p. 253 (1843), expressly gave up the name created by St. Fargeau & Serville in the Enc. Meth., x, 322 (1827), because, as they say, of its previous employment by Latreille (1817) for a genus of *Coleoptera*, and they adopted *Rhyparochromus*, Curtis, instead. The name, however, appears to have been first used by Thunberg in 1805 for a genus of *Curculionidæ*, and, if it is now to be restored, it ought surely to be given to some of its first owners, not being eligible for *Hemiptera*.

TINGIDINA.

In the "Enumeratio Hemipterorum," iii, 122 (1873), Professor Stål has substituted, on the ground of priority, the generic name "ACALYPTA," Westwood, Introd., ii, Syn. Gen., 121 (1840), for ORTHOSTIRA, Fieb., Ent. Monog., 29 & 46 (1844), but this cannot stand, for Schönherr had employed *Acalyptus*, in *Curculionidæ*, in 1836.

CAPSINA.

TERATOCORIS SAUNDERSI, D. & S., Ent. Mo. Mag., v, 260, 2 (1869), = *T. Flori*, J. Sahlb., Not. Sällsk. Fl. & Faun. Fenn. Förh., xi, 290, 79 (1870), *teste* J. Sahlberg in litt.

TYTTHUS INSIGNIS, D. & S., Ent. Mo. Mag., ii, 247, 1 (1866), = *T. flaveolus*, Reut., Not. Sällsk. Fl. & Faun. Fenn., xi, 323, 4, tab. 1, fig. 6 (1870).

CONOSTETHUS SALINUS, J. Sahlb., Not. Fenn. Fl. & Faun. Fenn., xi, 296, 116 (Jan., 1870), = *C. griseus*, D. & S., Ent. Mo. Mag., vi, 242, 2 (Mar., 1870).

LITOSOMA BICOLOR, D. & S., Ent. Mo. Mag., iv, 267 (1868), = *L. chloropterus*, Kirschb., Caps., 89, 121 & 156, 21 (1855).

Our opinion as to this insect being distinct from *L. chloropterus*, Kirschb., was confirmed by Fieber, to whom we sent some males. Evidently he did not know this sex, and it is somewhat singular that Kirschbaum omitted in his description one of the principal characters of identity, namely, the dark streak down the clavus and inner margin of the corium. All the females we have taken in company with *L. bicolor* are certainly referable to *L. chloropterus*, in favour of which we now sink the former name.

MACROCOLEUS HARDYI, Bold, Nat. Hist. Trans., Northumberland and Durham, iv, 358, 69 (1872), = *M. molliculus*, Fall.

Bold's specimens sent for confirmation of his species being distinct from *M. molliculus*, were only the last named in very fine condition.

ANTHOCORINA.

PIEZOSTETHUS CURSITANS.

Anthocoris cursitans, Fall., Hem. Suec., 69, 6 (1829).
Xylocoris rufipennis, L. Duf., Ann. Ent. France, ii, 106, 1 (1833).
Xylocoris bicolor, Scholz, Arb. u. Veränd., 116, 2 (1847).
Piezostethus rufipennis, D. & S., Brit. Hem., i, 501, 2 (1865).
Piezostethus cursitans, Reut., Oef. k. vet. Ak. Förh., 411, 3 (1871).

This amendment is made on the authority of Reuter, *l. c.*, where the full synonymy is given.

CERATOCOMBUS COLEOPTRATUS.

Anthocoris coleoptrata, Zett., Act. Holm., 74, 24 (1819).

Bryocoris muscorum, Fall., Hem. Suec., 153, 3 (1829).

Ceratocombus muscorum, Fieb., Eur. Hem., 143 (1861), D. & S., Brit. Hem., i, 514, 1 (1865).

Ceratocombus coleoptratus, Reut., Oef. k. vet. Ak. Förh., 406, 1 (1871).

Fallén, *l. c.*, gives, as a synonym, *Anthocoris coleoptrata*, Zett.? but Reuter, *l. c.*, cites this name as the prior one without any doubt.

OCULATINA.

SALDA *versus* ACANTHIA.

In the Syst. Entom., 693, 159 (1775), Fabricius established the genus *Acanthia*, the first or typical species being *Cimex lectularius*, L., and he included fourteen other discordant species.

In the Ent. Syst., iv, 67, 211 (1794), he preserved the genus *Acanthia* and increased the number of species to 45, but still kept *C. lectularius* as the type.

But in the Syst. Rhyng., 112, 20 (1803), he restricted *Acanthia* to two species—*lectularia*, L., and *hemiptera*, Fab., and referred the species previously placed in the genus to the new genera *Salda*, *Aradus*, *Syrtis*, and *Tingis*; and this arrangement has since been generally followed.

Professor Stål, however, in his "Enumeratio Hemipterorum," iii, 148 (1873), has substituted the genus *Acanthia*, Fab., for *Salda*, Fab., but this is certainly in contravention of Fabricius' idea, and therefore cannot be adopted.

REDUVINA.

NABIS ERICETORUM.

Nabis ericetorum, Scholz, Arb. u. Veränd, 113, 3 (1846), Fieb., Eur. Hem., 160, 4 (1861), Reut., Oef. k. vet. Ak. Förh., 76, 7 (1872).

Nabis dorsalis, D. & S., Brit. Hem., i, 557, 4 (1865), *nec* L. Duf., Fieb., *nec* *N. fuminervis*, Dahlb., *teste* Reuter, *l. c.*

NABIS PILOSULUS.

Nabis pilosulus, Fieb., Eur. Hem., 161, 7 (1861).

Nabis boops, Schiödte, Kroyer Nat. Tids., 3 ser., vi, 200, 147 (1867).

Stålia boops, Reut., Oef. k. vet. Ak. Förh., 95, 1 (1872).

On this species Reuter, *l. c.*, has founded his genus *Stålia*, but, as it appears to us, there is not sufficient difference of structure to establish the genus.—J. W. DOUGLAS & J. SCOTT, Lee: *October*, 1874.

Description of the larva, &c., of Anerastia lotella.—I am greatly indebted to the kindness of Mr. Charles G. Barrett for the opportunity of figuring and describing larvæ of this species, as well as their cases and cocoons, brought back by him from his visits to the coast of Norfolk,—*vide* E. M. M., vol. vii, p. 63.

The larva of this species resides in a tubular case of considerable firmness, made with grains of sand spun together; the specimens of cases that I had were irregular in form, and varying in length from 1¾ to 2¾ inches; the anterior portion of the case is rather attenuated at the mouth, but increases from thence in diameter to one-eighth of an inch, and occupies about a third (in some instances half) the entire length of the whole; this anterior portion is followed (sometimes at an abrupt angle) by the middle part of the tube, which is about half-an-inch in length and five-sixteenths of an inch in diameter, its hinder end connected with a congeries or cluster of rather rounded and bulb-like terminal pouches, each of which is about one-eighth of an inch or little more in diameter; these appendages add a length to the central part of the tube of from three-eighths to three-fourths of an inch; the pouches varying in number from three or four to eight or nine, and are stuffed full with frass, and sometimes appear in a bursting condition; they are of a pale sulphur-yellow colour, palest next the middle part of the case, which itself is the darkest and brownest portion of the whole construction.

These cases all lie more or less in a horizontal position, their mouths in connection with the plant stems of *Ammophila arenaria*, near the crown of the roots, on which part the larvæ feed; and the depth in the sand at which they may be found varies from one inch to even three or four, as the surface shifts according to the action of the wind; and thus sometimes they are quite exposed to view, and at other times they are buried deep by the accumulations blown over them. So great are the ravages made by these little creatures, that a plant is frequently so hollowed out as even to be killed.

The larva itself is about half-an-inch in length when full-grown, moderately stout and cylindrical, but the fore-part of the back curves a little convexly downwards to the head, and the hinder part tapers through the last four segments to the anal extremity; the head is much smaller than the second segment, within which it is often partially withdrawn; all the legs rather small in proportion, though perfectly developed. In colour it is of a pale rather subdued orange-yellow, the head pale reddish-brown; down the back is a very faint reddish dorsal line, and there are two equally faint reddish transverse squarish bars on the back of each segment extending to the sub-dorsal region; the spiracles are of the ground colour, as are also the polished plates on the second and anal segments; a few soft and very fine pale hairs issue from either extremity, and from the usual tubercular situations on the body.

The larva, when about to pupate, leaves its abode, and spins *near* its tube, but not in any way *connected* with it (unless apparently by mere accident), a dumpy tubular cocoon of sand, smoothly lined with silk, half-an-inch in length, thick as a goose-quill, tapering to an obtuse point at one end, abruptly and rather irregularly truncated at the other.

Mr. Barrett sent me the larvæ on June 11th and 27th,—the moths appeared on June 29th, July 22nd to 24th, 1870.

Since the foregoing was written I have had the pleasure to receive from Professor Zeller much additional information regarding the habits of *Anerastia lotella*, as well as a translation by himself of his most able and interesting history of the insect published in the Isis for 1848, wherein it appears this species in Germany inhabits barren sandy places and hills,—" the moths sitting by day very closely to stalks of " grasses near the ground, and flying readily only in the evenings and mornings;"— and the larva is found to feed commonly " on the tufts of *Aira canescens*, *Festuca* " *ovina*, and probably *Calamagrostis epigejos* and other grasses."

From the same source I learn that *lotella* has been more recently described by Dr. Kuhn as an insect destructive to rye,—no less than twenty acres of this cereal, in a sandy field at Herzberg in Saxony, having been nearly destroyed by it in 1869.

All the localities metioned by these continental entomologists are, of course, *inland*. In England, so far as I know at present, this species seems to be confined to barren sandy spots *on the coast*, saving the sandy fields more than twenty miles from the sea at Brandon in Suffolk, where Mr. Barrett found *lotella* quite at home; but then he tells us that these said sandy fields were, according to geologists, "a "range of coast sands at a recent point of the post-glacial period."

Supposing these sandy localities in Germany to be of similar origin, *lotella* still holds its place as a littoral insect, though with a change of taste as to food-plant.—WILLIAM BUCKLER, Emsworth: *November 11th*, 1874.

How to rear Bombyx rubi from the larva.—I believe there are so many who, like myself, can recal numerous instances of failure in attempts to rear this *Bombyx* from the larva, that I make no apology for offering an account of a method which has met with a very fair amount of success. I know there are other methods, which, perhaps, have succeeded as well; we have heard of keeping the larvæ quite torpid through the winter in an ice-house, of keeping them warm and quite dry at the back of a kitchen chimney, and I know by late friend, Mr. Dorville, had good success with his plan, which was to keep the larvæ in a largish box, with the cover partly of wood and partly of perforated zinc; this was half filled with peaty tufts of grass, &c., and kept all the winter, somewhat sheltered from wet, but otherwise open to the weather, so that in frost the larvæ could bury themselves for warmth, and in open weather could come up and enjoy the sun. However, the plan I am about to describe, by permission of the Rev. E. T. Daubeny, Rector of Bedhampton, Hants, differs from all the above, and may probably be found very convenient for some other Entomologists to follow; it is good to have a choice of methods, that each may take the one suited to his circumstances.

In September and October, 1872, Mr. Daubeny collected seventeen larvæ of *B. rubi*, and acting on the hint afforded him by the situation of their habitat, he resolved to fulfil the conditions he there observed as closely as circumstances would allow: and these were highly favourable for his purpose, with a verdant lawn, open and gently sloping towards the south, and at no great distance from the shore, but sheltered on the east by a range of buildings, and from the north and west by a high wall and screen of trees; here, on a slight eminence, by the roots of a Yucca, was the spot that suggested itself as best for perfect drainage, and exposure to the sun.

Accordingly, the larvæ were all established together on the short turf under a garden hand-glass with a moveable top, the frame of the glass being sunk into the ground to a depth of about three inches to prevent escape, and they were fed with heather:—of course some pains were taken to keep their dwelling in a wholesome condition, and fresh heather was duly supplied until they had ceased to feed, and, indeed, even afterwards, at intervals, all through the winter, and this proceeding, together with an occasional shifting of the top of the glass, promoted ventilation and prevented mouldiness; and opportunity was taken to notice that the larvæ formed for themselves hibernacula in little cavities hollowed out in the turf close to the roots of the grass.

As spring came on, a few larvæ began to appear on sunny days amongst the grass, which had grown almost too high for the hand-glass, and on the 21st of March, 1873, Mr. Daubeny determined on clearing it out; and while doing this, it struck him that some of the larvæ still asleep on the damp earth ought to wake up, as the weather was bright and sunny, and thinking they must have had enough moisture during the winter to prevent their bodies being reduced, he removed them to another sunny spot, and placed them again under the glass, but with a thick piece of board underneath them to prevent any more evaporation; a handful or two of short grass was thrown in a heap upon the board, and the larvæ now became lively and strong, basking in the sun's rays until the 24th of the month, by which time most of them had disappeared beneath the grass, and four or five cocoons could just be discerned amongst it.

On the 28th I had the pleasure, myself, of seeing them, and felt much satisfaction in the inspection of the occupants of this grass, which had now become dry and matted together into a flattish mass thickly interspersed with the long, brown cocoons woven within it. On looking at the spot where they had wintered, I chanced to detect a very fine larva, which had escaped notice when the rest were removed, apparently just waked up and beginning to move, being not so far advanced as those which had already pupated: after this, no further trouble was taken with them, and the net result was as follows: four larvæ found dead before winter from ichneumons; three dead in spring, without attempting to change; two dead in pupæ, one of them from having been disturbed in spinning; and eight moths bred between April 29th and May 17th, namely, two males and six females.—ID., *December 9th*, 1874.

Review.

SUPPLEMENT TO HARVESTING ANTS AND TRAP-DOOR SPIDERS; by J. TRAHERNE MOGGRIDGE, F.L.S., F.Z.S. 8vo, pp. 157—304. London: L. Reeve & Co., 1874.

Simultaneously with the announcement of the publication of this work appeared the notice of the death of its lamented author, at the early age of 32. Mr. Moggridge, owing to extremely delicate health, had, for several years, been compelled to pass the winter at Mentone, where he died on the 24th November. Although best known as an enthusiastic botanist (and the author of "Contributions to the Flora of Mentone"), he showed keen powers of observation in other departments; and, during the last few years of his life, he especially directed his attention to the habits of various species of ants and spiders that abounded in the vicinity of the place to which he was annually a forced exile. The results of these observations he published two years ago, and the present work is a supplement thereto. He has proved, we think incontestably, that the command to "go to the Ant, &c.," is not so metaphorical as some commentators of Holy Writ, basing their opinions only upon the Ants of more northern regions, would have us to suppose. He found that in the genial climate of the Riviera, at least two species of the native Ants *do* store seeds of various plants, and have the means, by some process not yet satisfactorily explained, of preventing their germination.

We have not space to quote from Mr. Moggridge's works, but heartily recommend them to the notice of our readers. His observations upon Trap-door Spiders are of the highest scientific interest, and the "Supplement" mainly relates to them, illustrated by plates from the author's drawings, with descriptions of the species by the Rev. O. Pickard Cambridge. One of the most curious facts is that some of these Spiders form "branched" nests, *i. e.*, there are two surface openings, each furnished with its characteristic "trap," the channels uniting at no great depth. One of the figures of such an arrangement gives the idea of a longitudinal section of the tubes of a binocular microscope.

Hundreds of our countrymen now resort every winter to the shores of the Mediterranean, and it is to be deplored that so few of them seek to counteract the tedium of absence from home, and ill-health combined, by observations upon the prolific natural history of the district: and however much we may rejoice that an Englishman (perhaps we ought to say, more correctly, a Welshman) has been the means of bringing so many interesting facts to light, we regret, none the less, that the native entomologists of the South of Europe should allow a foreigner to teach them the proper use of their eyes.

Entomological Society of London: *16th November*, 1874.—J. W. Dunning, Esq., M.A., F.L.S., Vice-President, in the Chair.

The following gentlemen were elected Subscribers to the Society, viz., R. E. Bull, Esq., 85, Milton Street, Dorset Square; F. Fitch, Esq., Highbury New Park; and H. D'Arcy Power, Esq., 8, Manor Terrace, Camberwell.

Mr. Higgins exhibited rare species of *Cetoniidæ* from Borneo, including *Lomaptera Higginsii* (O. Janson), the extraordinary dynastiform *Westwoodia Howittii* (Castlenau), and a smaller insect, which it had been suggested might be the female of this, but such a notion appeared very improbable.

Mr. Grut exhibited a collection of fine species of *Lepidoptera*, sent by Mr. Gooch from Natal for determination.

The Rev. O. P. Cambridge sent notes on the curious spider's nest exhibited at the last meeting. It was unknown to him; and but for the fact that Mr. Ward stated that the spider made a symmetrical (geometrical) web, he should have considered it to be the work of *Agelena*. He thought the sand was used to protect the eggs and young from the attacks of parasites. Mr. F. Smith reminded the meeting that the mud coating of the nest of *Agelena brunnea* did not preserve that species from parasites, as he had often bred species of *Pezomachus* from the nests, but he considered these latter were attacked before the outer coating of mud was added.

Mr. Champion exhibited rare species of British *Coleoptera*, including *Apion Ryei* (see *ante* p. 128) from the Shetlands, *Abdera triguttata* from Aviemore, *Lymexylon navale* from Dunham Park, Manchester, *Athous subfuscus* from the Shetlands, *Sylvanus similis* and *Apion sanguineum* from Esher.

South London Entomological Society.—The Third Annual Exhibition of this Society took place in St. Mary's Schools, Newington, by permission of the Managers, on Wednesday, December 9th, 1874. The room, though large, was inconveniently crowded, upwards of 600 persons testifying to their interest in Entomology by inspecting the numerous cases of insects on view. As usual at these exhibitions, British Lepidoptera occupied the largest space, the contributors being Messrs. Wellman, Farn, Allin, Barrett, Boden, Bolger, Chaney, Chitty, Cowley, Ficklin, Jones, Kennel, Lockyer, Lucas, Miller, Primmer, Tugwell, Shearwood, Oldham, S. Webb, West, and Williams. These gentlemen supplied nearly seventy cases of bred, rare, and local species, and many striking varieties. Lepidopterous larvæ and *pupæ were also well* represented in Messrs. Wittick and Hoey's cases.

Messrs. Lockyer, Power, Richardson, and Shearwood lent cases of brilliant exotic *Lepidoptera,* while Mr. Jenner Weir's case of insects of this order containing specimens to illustrate "mimicry" excited great interest.

There was also a remarkably fine collection of *Coleoptera,* exhibited by Messrs. Bryce, Bull, Champion, Marsh, and West.

Several other orders of insects were represented, as follows:—Mr. Hillman contributed a case of galls, and a case of economic entomology, illustrating insects injurious to vegetation; while Mr. Marsh supplied *Ichneumonidæ,* and Mr. Power lent a case of anatomical dissections; Mr. Bull showed *Orthoptera,* and Mr. McLachlan kindly lent four cases of brilliant exotic *Neuroptera.*

Microscopes added considerably to the extent of the exhibition.—J. P. B.

NOTES ON BRITISH *TORTRICES.*

BY C. G. BARRETT.

(*continued from p.* 156).

Since the notes upon *Eupœcilia udana* went to press, I have received the following communication from M. E. L. Ragonot of Paris.

"M. Perris has sent me several larvæ (of *udana*) preserved in "spirits of wine, from which I take the following description: Length, "8 mill. Bone colour or pale reddish-brown, the dorsal vessel darker, "ordinary spots concolorous, small, raised, shining. Head: plates on "the second and anal segments, and claspers, amber colour; mouth "and ocelli dark brown. Body cylindrical, attenuated at each extremity, "living (as M. Perris informs me) in the stems and petioles of the "leaves of *Alisma plantago,* boring a gallery in the interior. It changes "to a pupa *in situ,* after having spun a slight cocoon of grey silk."

Eupœcilia Geyeriana, H.-S.—Hitherto mixed with *udana,* Gn., under the name of *griseana.* A description will therefore be useful.

Alar exp., 5–6 lines.

Head and palpi ochreous. Antennæ brown. Fore-wings shining pale yellowish-ochreous, with rich brown markings, consisting of an oblique streak near the base of the dorsal margin, and a very oblique fascia in the middle of the wing, from the upper part of which a streak is given off which reaches the anal angle, thus forming a broad inverted Y, within which is a small dark brown triangle on the dorsal margin. There is also before the hind margin a second fascia, ill-defined, but often uniting with the posterior arm of the Y. Cilia ochreous, spotted with brown. Hind-wings grey with whitish cilia.

Allied to *udana,* Gn., but with narrower and more shining fore-wings, far more richly clouded with brown towards the apex. Allied also to *Mussehliana,* Tr., which, however, has no well-defined fasciæ as in this species.

Agrees well with Herrich-Schäffer's fig. 91. Found rather commonly in the fens of Norfolk, and probably in those of Cambridgeshire, flying among *Pedicularis palustris*, in May, June, and August.

Eupœcilia Manniana, F. v. R.—Also confounded apparently with *griseana*, and perhaps also with *affinitana*. It was, however, recognized as a distinct species by Messrs. Hodgkinson and Gregson, who took several specimens in Cumberland in 1869 and 1870, and was recorded in Newman's Entomologist for May, 1870, under the name of *Argyrolepia luridana*, Gregson. Under this name it was also noticed in the Entomologist's Annual for 1871, but the description, as there quoted, being hardly intelligible, I think it best to add a description taken from specimens lent me by the Rev. Henry Burney and Mr. Sang. Mr. Burney's are the original specimens taken by Mr. Hodgkinson (who has also obliged me with the sight of another taken by himself in May, 1872), and Mr. Sang's was taken by him near Darlington.

Alar exp., 6 lines.

Head, palpi, and thorax pale ochreous-yellow, darker at the sides. Fore-wings pale yellow with brownish-ochreous markings, consisting of a short streak along the costa at the base, an oblique dash from the base of the dorsal margin, an oblique, narrow, entire, sharply outlined central fascia, which emits a delicate line from its posterior margin, near the costa to the anal angle. In the enclosed space is a broad, flat, triangular spot on the dorsal margin. A second fascia or streak proceeds from the costa before the apex obliquely to the hind margin. Cilia pale yellow. Hind-wings pale grey, darker in the female.

It resembles at first sight a miniature *Argyrolepia cnicana*, for which reason I suppose Mr. Gregson placed it in that genus. Its nearest allies in this country appear to be *Eupœcilia Geyeriana* and *affinitana*.

I sent Messrs. Burney and Sang's specimens to Professor Zeller, who writes in reply:—"This is the species named for me by Fischer "von Röslerstamm when he visited me—*Manniana*. Under this name "I received it several times myself from Mann himself, who, I should "think, must know the species named in his honour. To this decision, "answers F. v. R.'s fig., Beitr., pl. 51. It is a rare species, occurring "in southern countries, but also in Silesia."

I give this decisive opinion of Zeller's in full because Heinemann appears to have mistaken *udana*, Gn., for this species, and his description consequently does not agree with it. This mistake has been followed up by other continental Lepidopterists, thereby leading Mr. McLachlan to quote them as identical. Dr. Wocke, however, gives them as distinct, and Herrich-Schäffer's figure of *Manniana* represents a species unknown to me.

Manniana, F. v. R., is certainly rare also in this country, but widely distributed. Besides the localities already mentioned, I took a worn specimen myself some years ago in a damp wood-path near Haslemere, Surrey, and have lately seen one from Devonshire, and several from Wilts, taken by Mr. E. Meyrick.

M. Jourdheuille's statement that the larva of this species feeds in stems of *Mentha sylvestris* may be intended to refer to *notulana*.

Eupœcilia rupicola, Curt.—In my opinion, Herrich-Schäffer's figures 86 and 87—*humidana*—do not represent this species, but fig. 85—*phaleratana*—does pretty correctly, although fig. 84 is not satisfactory.

M. Jourdheuille says that the larva of *rupicola* feeds in the flowers of *Chrysocoma linosyris*, hibernating within them; but this is evidently in error for *subroseana*, Haw. Zeller confirms Mr. McLachlan's statement that it only occurs among *Eupatorium*.

Eupœcilia vectisana, Westwood.—Wocke includes this species in his Catalogue as doubtfully distinct from *affinitana*. In this he probably followed Mr. Doubleday, who is now convinced of their distinctness and has introduced *vectisana* as a separate species in his last Supplement to his list. That they are distinct, I have not a shadow of doubt; but as yet the food-plant of the larva of *vectisana* has not been ascertained. In this country it is almost confined to salt marshes on the coast, but in Germany it is found in marshy meadows among *Triglochin palustre*. These German specimens are so much darker, and have the delicate silvery gloss so much more distinctly than ours, that it was only by the comparison of long and variable series that I could satisfy either Prof. Zeller or myself of their identity. This form is known, I believe, in Germany as *Geyeriana*, H.-S., but is much smaller than that species, and very different both in form and colour. I believe, however, that it *is* Heinemann's *Geyeriana*. I have just (since writing the above, in fact) received some remarkable evidence of the identity of these two forms. Mr. Machin has taken a specimen of our ordinary coast form in the Hackney marshes, close to London; and among some insects taken by Lord Walsingham in the Cambridgeshire fens, I find a similar specimen, and also *two of the strongly marked variety*. This is peculiarly satisfactory.

Wocke introduces *vectisana* a second time into his list as a synonym of *Mussehliana*, Tr., giving Wilkinson and Stainton as authorities. It is perhaps in some degree allied to this species, being, like it, usually destitute of a *well-defined* central fascia.

Eupœcilia affinitana, Dougl.

Eupœcilia flaviciliana, Dbld.—Apparently unknown—or confounded with *roseana*—on the continent. Wocke, following Heinemann, quotes Wilkinson's and Stainton's descriptions as synonymous with *epilinana*, Zell., but erroneously, *epilinana* being a broader winged insect with pinkish-*ochreous* fore-wings, and occurring among flax, on the seeds of which the larva feeds.

Eupœcilia roseana, Haw.

Eupœcilia subroseana, Haw.—Haworth's description of this species, though short, is pretty satisfactory, but Wilkinson's evidently refers to the richly coloured northern variety of *ciliella*, Hübn., as also do his localities, but upon this subject there are some notes in the Ent. Mo. Mag., vol. v, p. 244, and I need not therefore go into it again.

Dr. Wocke overlooks Wilkinson's description, but (incorrectly) sinks *subroseana*, Haw., into a variety of *roseana*, Haw. In the form of its wings it seems to me more nearly allied to *rupicola* than to the pointed-winged group of which *roseana* may be considered the type.

It appears in this country to be confined to the woods of the south, and is far from common.

Eupœcilia Heydeniana, H.-S.—Recorded and briefly described by Mr. McLachlan, in Ent. Ann., 1869, p. 90, and further noticed in Ent. Mo. Mag., v, p. 245.

Dr. Wocke appears to insert this species twice over in his list, since this is certainly *Heydeniana*, Hein., which he makes synonymous with *implicitana*, H.-S.

According to M. Jourdheuille's Calendar, the larva feeds in flowers of *Gnaphalium*, *Pyrethrum inodorum*, *Tanacetum*, *Artemisia* and *Solidago*, and it was about the last named plant that I used to take it at Haslemere.

I am strongly of opinion that Wood's fig. 1144—*ruficiliana*—represents this species, and if so his name would have priority.

Eupœcilia anthemidana, Curt. ?—Nothing further has been elicited about this species since Mr. McLachlan wrote in 1868, but I think it very doubtful whether the species found in Norfolk, feeding in seed-heads of *Erigeron acre*, and having a *white* head and palpi, is the same as that bred by Curtis from *Anthemis*, which is described as having *cream-coloured* head and face, inclining to *rosy*.

It does not, however, seem advisable to erect the *Erigeron* feeder into a new species until the true *anthemidana* (if distinct) be re-discovered.

Dr. Wocke omits this species from his list, but Heinemann regards it as synonymous with his *Heydeniana*—a very different species.

It seems to be widely distributed in this country, having been found commonly near Shoreham, in Kent, and near London, as well as at Lord Walsingham's original locality near Brandon, on the borders of Norfolk and Suffolk, and last season I found a few specimens close to Norwich. It does not seem to have been observed on the Continent.

Eupœcilia ruficiliana, Haw.—This has already been corrected by Mr. McLachlan, as well as by Dr. Wocke, to *ciliella*, Hübn., with which Haworth's brief description agrees very well.

It appears to feed on various species of *Primula*, for Prof. Zeller found it commonly in the Alps among *P. farinosa*, and this will perhaps account for its occurrence on high mountain districts in Scotland. Mr. Eedle, however, assures me that he takes the large, handsome, Scotch form among Bog Asphodel (*Narthecium ossifragum*).

There exists in Norfolk a dwarf form, rather brightly marked, and with the fore-wings regularly irrorated with grey scales, which I have been strongly inclined to consider distinct, but it seems impossible to find any reliable distinctive character, and I therefore bow to Prof. Zeller's opinion that it is merely a local variety, dwarfed by unusual food (probably *Anagallis tenella*, among which it is found on the boggy heaths). Wilkinson's description of *ruficiliana* may have been made from similar specimens.

Eupœcilia Degreyana, McLachlan.—Described by Mr. McLachlan in the Ent. Ann., 1869, p. 91, and further noticed in Ent. Mo. Mag. vol. v, p. 245.

Omitted by Dr. Wocke, who has, by some accident, entirely overlooked Mr. McLachlan's paper.

I have found it commonly near Norwich frequenting *Plantago lanceolata*, but have failed to find the larva. See Ent. Mo. Mag., vii, p. 158.

The Rev. H. Burney has, however, sent me a specimen which seems unquestionably to belong to this species, which was reared from a larva found feeding in seeds of *Linaria vulgaris* by Mr. Bree, a good many years ago.

I have merely placed this species at the end of the genus for convenience in following Wilkinson's arrangement; that of Mr. McLachlan is far more natural, as this species approaches very near to *roseana* and *flaviciliana*, as well as to *ciliella*.

Lozopera dilucidana, Steph.—Although this species is reared in plenty from stems of *Pastinaca sativa*, it is not yet satisfactorily ascertained whether it feeds entirely in them, or whether it is a seed-feeder when young, like its allies.

Lozopera Francillana, Fab.—Prof. Zeller asks whether these two are not variations of one species, and whether we do not find intermediate specimens? As far as my experience goes, they are totally distinct, and I never saw an intermediate specimen, neither do they seem to occur in the same localities. *Francillana* used to be common on the Dublin coast, but I never saw *dilucidana* there.

M. Jourdheuille says of *Francillana*, "Larva in dead stems of "previous year's *Eryngium campestre;*" this must be a mistake for some other species. It has been bred from larvæ feeding on the seeds of *Daucus carota.*

Lozopera Smeathmanniana, Fab.—M. Jourdheuille says, that the larva feeds in flower-heads of *Achillea millefolium*, and this is confirmed by Mr. Machin, who tells me that it leaves the seed-heads before spinning up. It has also been reared from seed-heads of *Centaurea nigra* and other *Compositæ.*

Lozopera straminea, Haw.—Better known in Germany by the later name, *Tischerana*, Tr. The larvæ feeds in seed-heads of *Centaurea*, and has been known to spin up in the root.

Lozopera alternana, Steph.—M. Guenée proposed to alter this to *gigantana*, there being another *alternana* in another genus, and this is followed by M. Doubleday in his list. Stephens' name must, I think, be retained.

This is an exceedingly local species. Prof. Zeller expresses doubt of its distinctness from *straminea.* I hope to convince him at a future time by the sight of a larger series than I have been able to send as yet. Its larva feeds in flower-heads of *Centaurea scabiosa*, on the south coast, and has been reared by Messrs. Doubleday and Bond.

Xanthosetia hamana, Linn.

Xanthosetia Zoegana, Linn.

Dapsilia rutilana, Hübn.

Argyridia dipoltella, Hübn.—Zeller says, "Larva in umbels of " *Achillea millefolium* in October."

(To be continued.)

DESCRIPTION OF A NEW SPECIES OF *PROCTOTRYPIDÆ* FROM CEYLON.

BY A. O. WARD.

MYMAR TAPROBANICUS, *sp. n.*

♀. *Ochraceus, subtus pallidior, antennis pedibusque concoloribus, oculis rufis, sub-hemisphæricis; alarum anticarum pars dilatata hyalina, dimidio apicali fusco, marginibus ciliatis; alæ posticæ longæ, setaceæ; petiolus sat validus, coxis posticis longior; aculeus retractilis, subexsertus.*

Habitat Ins. Ceilanum.

Long. corp. ·02 *unc.* (¼ *lin. anglic.*); *Alar. exp.* ·6 *unc.* (1½ *lin.*).

Differs from the European *M. pulchellus*, Curt., in the following particulars: the eyes are red, the antennæ of the same colour as the rest of the body; the scape is thicker than the flagellum, but slightly shorter than the fourth joint; and the petiole of the abdomen is stouter (rather thicker than the scape).

The apical half of the spatuliform part of the fore-wings is obfuscated, being darkest towards the apex, and the marginal ciliæ are longer than the width of this expanded portion; in addition to them, there are two rows of shorter setæ on the surface and towards the anterior margin of the wings. The linear non-spatulate hind-wings are two-thirds the length of the anterior pair. The apical joints of the tarsi and antennæ are darkened. The limbs and antennæ are clothed with sparse short setæ, spirally arranged on the latter.

This insect was sent from Colombo mounted in balsam, by Mr. Stanniforth Green, who has devoted considerable attention to this method of mounting entire insects, and with success. He finds that the balsam in the hot climate of Ceylon dries rapidly; and if, as he says, it is impossible to transmit delicate specimens mounted in the usual way on card, Mr. Green's method deserves great attention, even though we lose by it the power of inspecting specimens from all points, and can in some instances only obtain the symmetrical dorsal view to which most entomologists are accustomed.

Parkfield, Putney, S.W.:
January, 1875.

NOTES ON BRITISH *HOMOPTERA*, WITH DESCRIPTIONS OF ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

TYPHLOCYBIDÆ.

In Silbermann's "Revue," 1833, Germar characterised a group of species of *Homoptera* as a genus, under the name of *Typhlocyba*, and in January of the same year, in the first volume of the "Entomological Magazine," Curtis characterised the same group under the generic name of *Eupteryx*. Germar's definition was very meagre, and Curtis's was also insufficient, and I am not sure which had the claim of priority, although it is most probable it was due to *Eupteryx*. But in 1837, in his "British Entomology," Curtis accurately defined *Eupteryx*, giving characters, illustrated by figures, derived in part from the neuration of the elytra and wings, and confirming *Cicada picta*, Fab., as the type, but without pointing out that all the species he associated did not conform thereto. Therefore, when the generic sub-division of the group, according to more precise modern ideas, became requisite, it was necessary to restrict *Eupteryx* to the species which agreed with the characters given, and to relegate the others meanwhile to *Typhlocyba*. Several authors, however, have not done this; Westwood, in his "Introduction" (1840), quotes *Typhlocyba*, Germ., in its entirety and as equivalent to *Eupteryx*, Curt.; Zetterstedt, in his "Insecta Lapponica" (1840), gives a new name—*Cicadula*—to the genus, including some species not belonging to the family, although he quotes *Typhlocyba* as a synonym, but he divided it into eight sections without sub-generic names. Now, it follows that if Zetterstedt's name, *Cicadula*, be retained at all, it can only be for the first section of his genus, comprising two species, *Cicada 4-notata*, Fab., and *C. strigipes*, Zett.; but both of these are referred to the genus *Thamnotettix* by Fieber, who, after passing over the first section, has made *Cicadula*, Zett., the generic receptacle for certain species of the second section only.

In the Verhandl. k. k. zool.-botan. Gesells. Wien, 1865, Fieber distributed the *Typhlocybidæ* among ten genera, then characterized, viz.: *Compsus*, *Erythria*, *Notus*, *Chloria*, *Kybos*, *Anomia*, *Zygina*, *Idia*, *Typhlocyba*, and *Eupteryx*, all of them, except the last two, being new. *Eupteryx* is here properly typified, according to Curtis's characters, by *Cicada vittata*, L., and *C. urticæ*, Fab.; and to *Typhlocyba* are referred all the species left after his generic selection; *Cicada lineatella*, Fall, (= *C. geometrica*, Schrk.), being the type.

In the Ent. Mo. Mag., 1867, Marshall described all the then known British species under the name *Eupteryx*, Curtis, but gave sectional characters.

In his "Cicadinen," 1868, Kirschbaum puts all the species he describes into three sections of *Typhlocyba*, Germ.

In his "Cicadaria," 1871, Dr. J. Sahlberg has, in the main, adopted Fieber's scheme of genera, modifying it, however, by uniting *Anomia*, *Zygina*, *Idia*, and *Typhlocyba*, under the name of *Typhlocyba*, and *Chloria* and *Kybos* under the name of *Cicadula*, Zett. The former set of these modifications, founded upon consideration of the small amount of difference in the neuration of the wings, as shown by Fieber himself (and in some cases admitted by him subsequently), is, I think, justifiable; but the adoption of the name *Cicadula* for part of Zetterstedt's section "b" cannot be maintained, for the reasons stated above, and on account also of the generic discordance among the species cited. The figures of the neuration of the wings, on which the genera are chiefly founded, are excellent.

In 1872, Fieber published his "Katalog der europäischen Cicadinen," in which, on the ground of prior use, he alters *Compsus* to *Alebra*, and *Chloria* to *Chlorita*; and he unites *Erythria* with *Notus*, and *Idia* with *Zygina*. But he relinquishes his former correct idea of *Eupteryx*, Curt., which he calls *Typhlocyba*, Germ., refers the species previously associated under the latter name to *Anomia* and *Zygina*, and drops *Eupteryx*, Curt., altogether; fortunately, these latter arbitrary propositions appear only in a Catalogue, and without show of justification, but it is necessary to notice them to prevent misconception by those who follow.

(To be continued).

ON THE ARRANGEMENT OF THE BRITISH *ANTHOMYIIDÆ*.

BY R. H. MEADE.

The small and sombre flies comprised in the Dipterous family *Anthomyiidæ* are very little known to British entomologists; but their numbers, both in species and individuals, are so great in this and other cold and temperate climates, that they deserve more attention than they have received. They are confessedly difficult to determine; but this very difficulty adds to the interest which they should excite, and is truly more apparent than real; for, though many species are exceedingly alike, when closely examined, good distinctive characters may mostly be found for their separation.

To facilitate their examination and description, it is imperatively necessary to sub-divide them into groups or genera; and though some of these must be more or less artificial, this is a small evil in comparison with leaving 200 or 300 species in one genus.

It is for the purpose of calling the attention of British entomologists to this family (which has been most carefully studied upon the Continent) that I venture to publish a few remarks on the characters of the principal generic sub-divisions into which our indigenous species may be classed, and I shall endeavour to arrange them, as far as possible, into natural groups.

Meigen, to whom all Dipterologists owe so much, first detached these flies from the great tribe of *Muscidæ;* but he retained almost all the European species in one genus, which he named *Anthomyia.* In his seventh or supplementary volume, however, published in 1838, he raised them to the rank of a separate family, and adopted some of the new genera which had then been formed.

Dr. Robineau Desvoidy, in his "Essai sur les Myodares" (1830), first sub-divided this family (which he named *Mesomydæ*) into a great number of small groups; but he went as much too far in the formation of genera as he did in the sub-division of species, for both are characterised by such insufficient and undecided characters, that they are practically useless. Macquart* reduced the chaos created by Desvoidy into something like order, and his genera (which were made with great skill) have been adopted, with various modifications, by most subsequent authors, with the exception of Zetterstedt, who, in his great work upon the *Diptera* of Scandinavia, includes almost all the *Anthomyiidæ* in two genera; one characterised by having entirely black legs, and the other by the legs being partly or wholly yellow.

Rondani, the most recent systematic writer upon the *Anthomyiidæ*, has, in his work upon the Italian *Diptera*, very carefully and elaborately revised the genera into which they may be sub-divided, adding a good many new ones, and altering the names of others; and, although he may have carried his alterations a little too far, he has done much valuable work.†

The *Anthomyiidæ* may at once be known from the typical flies

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* Hist. Nat. des insectes diptères, 1835.

† Schiner's valuable work upon the *Diptera*, in the "Fauna Austriaca," may also be mentioned.

(*Muscides*), as the house-fly and blue-bottle, by having the first posterior cell of the wings open at its extremity, the fifth longitudinal or præbrachial vein running straight or nearly straight to the margin of the wing, while it is curved or bent at an angle towards the fourth or cubital vein in the true *Muscides*. They may also be distinguished from the more feebly developed or acalypterate families of *Muscidæ* either by the approximation of the eyes of the male, or by the size of the alulets, which, though sometimes small, are always very distinct in the *Anthomyiidæ*, even in those genera in which the eyes are widely separated in both sexes.

It is of importance to determine which are the most constant, and therefore most valuable points of structure, for the formation of genera.

The relative size of the scales of the alulets may first be mentioned. In the more typical species they are generally tolerably large, and the lower scale projects considerably beyond the upper; but in many others they are small, and nearly or quite of the same size, so that one scale completely covers the other.

In some large groups the arista or style of the antennæ is hairy or plumose, in others only tomentose or bare.

In many species the eyes are hairy, in a still greater number naked.

In some divisions the abdomen is always spotted, or provided with sub-anal appendages.

The body and legs are often furnished with various teeth, spines, hairs, and bristles, which are generally constant in form and position, and become very valuable characters for the formation of genera, when they are similarly placed in a number of allied species. I am indebted to Mr. Verrall for pointing out to me that there are two rows of dorsal bristles always present upon the thorax, in addition to others scattered on the sides, in which the number of setæ is always constant in individuals of the same species. There are two (in a few kinds, only one) in front of the transverse suture, by which the thorax is intersected, in a longitudinal line with either three or four strong bristles behind it.

In addition to the features I have mentioned, the length and direction of the veins of the wings is very characteristic of certain groups, as is also the shape of the head and abdomen; and two genera may be known, one by the peculiar shape of the proboscis, and the other of the palpi.

I will now endeavour to arrange the genera in a tabular or analytical form, and then make a few illustrative remarks upon each genus.

GENERA ANTHOMYIIDARUM. TABULAR ARRANGEMENT.

A. Eyes approximate or contiguous in the males, but distant in the females.
- B. Scales of the alulets unequal in size, the under one being larger than the upper.
  - C. Arista plumose, the hairs on the style sometimes short but always distinct.
    - D. Eyes hairy.
      - E. Alulets large.
        - F. Abdomen somewhat hemispherical, and borders of facial groove setigerous ...... 1. POLIETES,* Rondani.
        - FF. Abdomen generally oval, borders of facial groove without bristles ...... 2. HYETODESIA,† Rond.
    - DD. Eyes naked, or very slightly pubescent ...... 3. MYDÆA, Desvoidy.
      - G. Abdomen spotted and mostly oblong ...... 4. SPILOGASTER, Macquart.
      - GG. Abdomen without distinct spots, and furnished with sub-anal appendages in the male ...... 5. HYDROPHORIA, Desv.
        - H. Proboscis elongated and bent forwards, with a hooked and pointed extremity ...... 6. DRYMEIA, Meigen.
  - CC. Arista pubescent or bare.
    - I. Anterior femora toothed in the males.
      - J. Eyes hairy ...... 7. ONODONTHA, Rond.
      - JJ. Eyes naked, or only slightly ciliated ...... 8. HYDROTÆA, Desv.
    - II. Anterior femora plain in the males.
      - K. Eyes hairy ...... 9. LASIOPS, Meig.
      - KK. Eyes naked.
        - L. Posterior tibiæ curved in the males ...... 10. OPHYRA, Desv.
        - LL. Posterior tibiæ of the ordinary form, and the middle tibiæ furnished with bristles on their external as well as posterior surfaces, in addition to those at their extremities.
          - M. Abdomen spotted ...... 11. LIMNOPHORA, Desv.
      - EE. Alulets small, but the lower scales not quite quite covered by the upper.
        - N. Head semi-circular, without projection of forehead or epistome.
          - O. Seventh longitudinal or anal vein of the wings very short, with the sub-axillary vein curved towards its extremity.
            - P. Abdomen flattened ...... 12. HOMALOMYIA, Bouché.
            - PP. Abdomen narrow, cylindrical, and spotted ...... 13. AZELIA, Desv.
        - NN. Head more or less angular, with forehead or epistome projecting.
          - OO. Anal vein prolonged to the margin of the wing ...... 14. ANTHOMYIA, Meig.
- BB. Lower scales of the alulets entirely covered by the upper.
  - P. Arista plumose ...... 15. HYLEMYIA, Desv.
  - PP. Arista pubescent or bare.
    - Q. Head often large, but cheeks not inflated and setose ...... 16. CHORTOPHILA, Macq.
    - QQ. Cheeks swollen and hirsute ...... 17. ERIPHIA, Meig.

AA. Eyes distant in both sexes.
- R. Alulets moderate in size, the lower scale longer than the upper.
  - S. Palpi spatulate in form ...... 18. LISPA, Latreille.
  - SS. Palpi of ordinary form.
    - T. Arista plumose ...... 19. CARICEA, Desv.
    - TT. Arista pubescent or bare ...... 20. CÆNOSIA, Meig.
- RR. Alulets small, the lower scale nearly or wholly covered by the upper.
  - U. Arista distinctly plumose.
    - V. Abdomen with sub-anal appendages in the male ...... 21. OPHOGASTER, Rond.
    - VV. Abdomen of male without appendages ...... 22. MYCOPHAGA, Rond.
  - UU. Arista bare.
    - W. Seventh longitudinal or anal vein of wings very short ...... 23. SCHŒNOMYZA, Haliday.

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* Genus *Macrosoma* of Desvoidy. This name, however, had been previously given to another genus of animals.

† This corresponds in part to the genus *Aricia* of Desv. and Macquart, a name which had been previously occupied by Savigny.

Polietes.—This genus was separated by R. Desvoidy from the *Anthomyiidæ* and placed among the *Muscides*, from the resemblance which the two species contained in it bear to some of the more highly developed flies; but it possesses the essential character of the family in a very high degree, the fourth and fifth longitudinal veins diverging considerably from each other at their extremities, thus leaving the first posterior cells of the wings widely open. Of the two species which it contains, one is the well known *Musca lardaria*, Fab., in size and form much like the common blue-bottle fly, but lighter and greyer in colour; and the other the *Musca albo-lineata*, Fall., the *Macrosoma floralis* of Desvoidy, which closely resembles *Cyrtoneura hortorum* in colour and markings.

Hyetodesia.—This includes all the species (except the two in the previous genus) which have plumose antennæ and hairy eyes. It corresponds to the first half of the genus *Aricia* of Macquart and others. The typical species are mostly of considerable size, have an oval abdomen, and form a very natural group; but a good many aberrant species of small size and oblong form are obliged to be associated with them.

(To be continued).

DESCRIPTION OF A NEW SPECIES OF *BRASSOLINÆ* FROM BOGOTÁ.

BY W. L. DISTANT.

Opsiphanes Bogotanus, *n. sp.*

Wings above, chocolate-brown, front wings with first half of costal area of a more rufous-brown, from which, near the base, a semi-circular patch of the same colour extends over about one-third of discoidal cell to base of internal area, a somewhat irregular band of yellowish-white extending from costal margin immediately past extremity of cell to external angle, widening below cell and terminating in a smallish sub-marginal patch; three sub-apical white spots. Hind-wings with abdominal half of a more rufous-brown, which occupies lower half of cell and extends through second median interspace to abdominal area which is yellowish-white, two sub-marginal, somewhat obscure, narrow waved bands of darker brown.

Wings below very similar to *O. Crameri*, Felder, and to *O. Orgetorix*, Hewitson.

Expanse of wings, 4 in. 2 lin. Hab.: Bogotá.

A female, apparently of this species, is in the National Collection from Venezuela, and in colour and markings somewhat closely resembles *O. Crameri*, Felder.

Streatham Cottage, Buccleuch Road,
West Dulwich, S.E.:
January 2nd, 1875.

DESCRIPTION OF THREE NEW SPECIES OF *TRIGONURUS.*

BY D. SHARP, M.B.

Dr. Leconte has recently described a number of the more interesting of the new species of *Coleoptera,* discovered by the lamented G. R. Crotch, in California. Among these descriptions are to be found two new species of the important genus *Trigonurus,*—noteworthy for the New-world Coleopterous fauna. I have for some years possessed three species of *Trigonurus* from California, and supposed, on receiving Dr. Leconte's paper, that I should find two of them to be his new species. Such, however, proves not to be the case; for, after examination of Leconte's descriptions, I am obliged to conclude that I possess neither of his two species; and I think it will be of interest, therefore, to publish descriptions of the three species in my collection.

TRIGONURUS RUGOSUS, *n. sp.*

Castaneus, opacus, sub-parallelus; thorace sub-quadrato, basi bisinuato, angulis posterioribus leviter acutis; elytris dense, fortiter, ruguloso-et striato-punctatis, apice recte truncatis; abdomine crebre fortiter punctato. *Long. corp.* 5 *mm.*

Head coarsely and closely punctured, with a deep transverse impression between the insertion of the antennæ. Thorax very nearly as long as broad, the sides a little narrowed in front of the middle: it is densely and coarsely punctured, with a longitudinal impression along the middle, which does not reach the base; and it has also on each side a rather large but ill-defined basal impression just within the angles. The elytra are one and a half times the length of the thorax, but only slightly broader than it; they are very coarsely punctured, and the punctures are arranged in rows, but they are very close together and the interstices are irregular or rugulose; the hind-body is rather closely and coarsely punctured.

The dense coarse sculpture rendering the upper surface opaque, and the truncate apex of the elytra, make this species very easily distinguishable from all others of the genus.

In its structural characters this species closely approaches *T. Mellyi;* nevertheless, a difference exists between the two in the structure of the prosternum; in *T. rugosus,* the posterior side piece of the prosternum forms a true triangle; it is a little further removed from the front piece, the result of which is that the front coxæ of *T. rugosus* are rather more enclosed behind, but are more uncovered at the sides than in *T. Mellyi;* should this structure be found similar in the other American species, it may be sufficient to warrant the establishment of a separate genus. In both *T. Mellyi* and *T. rugosus,* *a trochantin of the* front coxæ is very distinctly visible.

TRIGONURUS EDWARDSI, *n. sp.*

Castaneo-piceus, nitidus; thorace sub-quadrato, minus dense et minus fortiter punctato, basi truncato, angulis posterioribus rectis; elytris fortiter regulariterque striato-punctatis; abdomine subtiliter punctato, apice lævigato. *Long. corp.* 4 *mm.*

Head sparingly and indistinctly punctured, with a transverse impression between the insertion of the antennæ. Thorax rather broader than long, straight at the sides, but narrowed near the front angles; the punctuation of its upper surface is irregular, it being coarse at the base, and especially distinct and coarse in the two basal impressions, it is fine on the disc and wanting at the front angles. It has a longitudinal channel abbreviated in front and behind. Elytra about one and a half times the length of the thorax, extremely strongly and regularly punctured; the punctures arranged in very distinct and regular rows, but not placed in grooves, each puncture is very distinct and well defined, the interstices being narrow, there are seven of these rows; the seventh is entire, and outside it is a very abbreviated eighth row. The hind-body is very sparingly and finely punctured, the apical segments indeed are very nearly impunctate.

This species is clearly closely allied to *T. cælatus*, Lec., but I believe the punctuation of its thorax and hind-body must be very much finer than in that species.

I have very much pleasure in naming this insect in honour of Henry Edwards, Esq., of San Francisco, to whom I am indebted for this, as also the other species here described. His liberality has supplied me with twenty specimens of *T. rugosus*, three of *T. Edwardsi*, and two of *T. Lecontus.*

TRIGONURUS LECONTUS, *n. sp.*

Nitidus, depressus, piceo-rufus, elytris magis rufescentibus; thorace transversim sub-quadrato, basi truncato, angulis posterioribus rectis; elytris regulariter punctato-striatis, punctis minus discretis, interstitiis angustis; abdomine minus crebre sat fortiter punctato.

Long. corp. 4½ *mm.*

This species much resembles *T. Edwardsi*, but is broader and rather more depressed; its thorax is a little more strongly punctured, and the dorsal channel less distinct; the hind-body is more distinctly punctured. The sculpture of the elytra, however, readily distinguishes the two species; the punctures in *T. Lecontus* being placed in grooves, and the longitudinal interstices between the punctures are indistinct and not elevated.

According to Leconte's description of *T. Crotchii*, this species must be closely allied thereto; in *T. Crotchii*, Leconte says the elytra are twice as long as the thorax, with the seventh stria fainter than the others, and abbreviated one-fifth before the base; while in *T. Lecontus*, the seventh stria attains the base, and the elytra have not quite 5 : 3 of the length of the thorax.

I have ventured to name this species in honour of the distinguished entomologist, J. L. Leconte; and I have used the trivial word *Lecontus*, in preference to *Lecontei*, a word of which the pronunciation is at least ambiguous.

Thornhill, Dumfries:
January 8th, 1875.

On the synonymy of Pleocoma staff, Schaufuss.—In the paper above alluded to (or rather immediately following it), will be found a notice by Dr. Leconte on the species of the remarkable genus *Pleocoma*, and also a description of the larva of one of the species by Baron R. Osten Sacken.

Leconte describes one of the species of the genus under the name of *Pleocoma Edwardsii*, and adds to his description the following observations:—

> "This species is recognizably described, though not properly named, by Mr. "Schaufuss (Nunquam Otiosus, vol. ii). The name suggested for it by "Mr. Crotch (Check list, p. 58) is likewise inadmissible, not only because he "gives no reason for its adoption, and because that kind of list is an improper "place for changes in nomenclature, but for the still stronger reason, that it "tends to perpetuate in science the memory of the political venom which "inspired the name given by Mr. Schaufuss. I cannot express myself too "strongly on the necessity of keeping our scientific nomenclature free "from all personal, political, or religious prejudices or expressions of "opinion. Such use of scientific publication, for intruding upon students "of natural history irrelevant views respecting subjects which are not "comprised within the domain of their researches, must be discountenanced."

So says the renowned American entomologist; and I fully agree with his strong expressions of opinion on the contemptible nature of motives which prompt the giving of a scientific name under such circumstances as those to which he alludes. But I cannot agree with him in thinking we are justified in changing a name so given in order to mark our displeasure. The name, after it was once given, is disjoined from the motives that prompted it; and we may be sure these will be speedily forgotten, or, if remembered, it will be only to call up a smile at the childish impetuosity of the namer.

The facts of the case are briefly as follows: Schaufuss described in "Nunquam Otiosus" three species of *Pleocoma*, to one of which he gave the name "*P. staff*," intending some allusion to the "Prussian general staff." Crotch, in his Check list of N. American *Coleoptera*, cites this species in due place as No. 3365, but gives it a new name, viz., "*Pleocoma adjurans*, Cr." and indicates in an unmistakeable manner the species he intends the name for, by adding "*staff*, Schauf." as a synonym. Leconte *afterwards proposes* a third name for the same species.

Such are the facts; and the question arises, which of the three names is to be the name of the species? Is it to be called *Pleocoma staff*, *P. adjurans*, or *P. Edwardsii*?

To me, it is clear that the name given by Schaufuss, being the oldest (and it is not disputed but that the description by which it is accompanied is a sufficient one), is the correct name for the species. It is quite plain to me that we have no right to reject a name on account of the motives expressed, or unexpressed, of the giver: this, indeed, seems so clear that I think it will be generally admitted, and I will therefore say no more about it. But it may still be objected that the name *P. staff* ought to be set aside, because it is neither Latin or classical. To this I answer that the use of words other than Latin and classical ones, for trivial names, is now generally recognized as legitimate, and is expressly advocated by the late Prof. Agassiz (see note on the subject, in his "Journey to Brazil"), and by myself. Those who insist on a Latin termination can easily give this to Schaufuss' name by writing it "*P. staffa.*"

I think, then, there is no question that Schaufuss' name should be adopted; but if it be not, then certainly the name *P. adjurans*, Cr., should be used. I must admit I have read with astonishment Leconte's reasons (above quoted) for setting this on one side. They appear to be three in number: first, that Crotch "gives no reason for its adoption;" under the circumstances it was clear that any reason was uncalled for. Second, "that kind of list is an improper place for changes in nomenclature;" to this I answer, that I consider it one of the *best* places to make such changes when they are necessary. Leconte's third reason is but a diluted repetition of the "motive" one I have already commented on, and need not notice further.

I hope the preceding remarks will not be considered superfluous. The principal difficulty in establishing a system of Zoological Nomenclature consists in the constant introduction of new reasons for changing names. The innovations implied by Dr. Leconte's remarks above quoted are so considerable, and his reputation is so great, that the observations I have made will not, I trust, be considered intrusive.—D. SHARP, Thornhill, Dumfries: *January 12th*, 1875.

Note on a species of Amara new to Britain.—I have no doubt that many others, like myself, have often found a difficulty in satisfactorily separating their exponents of *Amara lunicollis* and *communis*, which, to me, at least, always seemed to be connected by an intermediate form. Thomson, Opusc. Ent. v (1873), p. 529, has solved the enigma by describing a third species, *A. continua*, occurring rarely in the south-west parts of Sweden, in sandy districts (but which, as far as my small collection goes, is more abundant here than *communis*, to which it is allied).

A. lunicollis has only the *two* basal joints of the antennæ reddish, or pitchy, often quite dark on the upper side; the thoracic basal foveæ distinctly impressed, but the whole base obsoletely punctured; the middle tibiæ of the ♂ distinctly curved, &c.

In *A. continua* and *communis*, the *three* basal joints of the antennæ are testaceous-red, and the tibiæ are often ferruginous; the thoracic basal foveæ are more obsoletely impressed, but the base itself is more decidedly punctured, and the anterior angles are more produced. *A. continua* is the larger of the two, having the build of *lunicollis* (viz.: broader than *communis*, less parallel, with the elytra wider behind);

and it is readily separated from *communis* by having the marginal row of large punctures on the elytra continuous, whereas, in *communis*, these large punctures are very perceptibly interrupted about a third of the length below the shoulder. This continuous row of punctures is also found in *lunicollis*.—E. C. RYE, Parkfield, Putney, S.W.: *December*, 1874.

Late appearance of Cetonia aurata.—At p. 178, vol. x, of the "Entomologist's Monthly Magazine," Mr. Scott records the appearance of *Cetonia aurata* on the 15th October. I have now to chronicle an even later date for that species, as I found a specimen of it at ivy-bloom, in the day-time, on the 29th October last year, in a garden at West Wickham. This specimen was unusually small, but otherwise in an excellent condition; and seemed to have but just entered into the imago state.—W. A. FORBES, 35, S. Castle Street, Edinburgh: *January*, 1875.

[These exceptional appearances are no doubt due to the fact that the *Cetonia* (like *Lucanus cervus*, and some other beetles) assumes the perfect state late in the autumn, but remains, ordinarily, in the cocoon till the following summer. Hence these abnormal autumnal specimens should rather be regarded as "early," not "late;" their appearance being perhaps due to sudden rise of temperature combined with individual precocity.—EDS.]

Ælia acuminata.—As this species is recorded in Douglas and Scott's "British *Hemiptera-Heteroptera*" only from the London district, it may be of interest if I state that I found it in abundance by sweeping in a clover-field near Winchester, at the latter end of May, some years ago."—ID.

Comparative descriptions of the larvæ, &c., of Xylophasia lithoxylea and polyodon.—From the great similarity that exists between the larvæ of these two species, Duponchel, who had bred both insects from larvæ in which he thought he could see no difference, was induced to consider them to be but varieties of one species; and I confess that for a long time after certain experiments made by myself, which seemed to end in a similar way, I felt strongly inclined to take the same view; and nothing but the firm and continued assurances to the contrary of my friend Mr. Doubleday encouraged me to persevere, in the hope of eventually distinguishing the one larva from the other.

Foiled year after year in my attempts to obtain eggs from the moths imprisoned for that purpose, and failing also to obtain them from friends who could naturally perhaps feel but little interest in these insects of such common occurrence,—I had to content myself with those single examples of the larvæ that by chance occurred to myself, or were found and forwarded to me by friends at distant intervals of time, so that my investigation has unavoidably been of a somewhat desultory nature, and in addition has often been retarded, just when success seemed almost assured, by the vexatious circumstance of the disclosure of ichneumons in the place of moths; this last circumstance also gave rise in my mind to doubts as to whether certain appearances, which I had figured and noted, might not have been due entirely t[illegible]he presence of parasites within the larva, and I felt compelled to wait on for further observation of healthy larvæ.

Thanks to the kindness of the Rev. H. Williams of Croxton, my desire has been fulfilled, and my work in this difficult matter accomplished during the season now closing; and in the hope of interesting some of the readers of this Magazine, I venture to submit my notes of both species of larvæ for publication; at the same time acknowledging the kindness of Mr. W. Machin, who, at the end of March, 1871, sent me two larvæ found by him at the roots of grass, and by so doing, as the event has proved, helped me to both species at once.

Both species of larvæ are alike in figure and structure, having tough, smooth, shining skins, and still more lustrous dark heads, plates, and spots; they are irritable in disposition, and this circumstance, added to the lustre of their surface, renders very close inspection necessary to arrive at their identification. They are cylindrical and tapering a little from the third segment to the head, and again from the eleventh to the anal extremity; the third and fourth segments subdivided by transverse wrinkles, the others plump, well-defined, and puckered a little along the sides; the usual dots in both species assume the character of tubercular warts, each furnished with a hair, like the head and plates they are black or blackish-brown in colour, and in shape and arrangement are found as follows: the central transverse series on the back of the third and fourth segments are oblong and are preceded and followed by a fusiform transverse spot dorsally divided by a thin line of the ground colour, which is also seen to divide the anterior plate, while on the sides of these two segments are grouped several more or less roundish spots; on the back of each of the other segments (save the last) are four large black spots, the trapezoidals, these have the first pairs round, the second pairs roundish-ovate; along the sides of each of these segments are grouped five spots in this way, the spiracle is surrounded with four of them, viz.: a large one above and below, one behind much smaller, and the smallest a mere dot in front, the fifth spot is the lowest, and where the ventral legs occur is borne on them; the thirteenth segment has spots in front and a plate behind; the ventral and anal legs are broadly barred near their tips, which are fringed with hooks of the same colour as the head and plates.

Lithoxylea full-grown is about one and a half-inch in length, and stout in proportion, its brownish-grey ground colour has a slight fawn tinge in it, *and is but little paler below the spiracular region*, though the belly has a faint tinge of greenish; the pulsating dorsal vessel is of a deeper tint than the back; the upper lip darkish fawn colour, the antennal papillæ a little paler; the anterior legs fawn colour and often tipped with blackish; spiracles black.

Polyodon, when full grown, varies in length from one and a half to one and six-eighths of an inch, and is often very stout; its colour is either grey, brownish-grey, or lurid deep reddish-grey varying in intensity, and there is a variety banded across the middle of each segment with darker grey than the ground colour, these bands are not abruptly defined but melt away to the paler ground colour; another variety occurs in which the back is dark purplish-grey, changing gently along the spiracular region to a dingy brownish-red, which is on all the lower parts of the body, while the head is dingy purplish-red; but, whatever the general colouring, the pulsating darker dorsal vessel shows in a subdued manner through the skin; *within the area of the trapezoidal spots on the back there are on each segment, from the fourth to the twelfth, six pale grey marks, namely: a* pair of transverse short curved and *pointed streaks, with their broadish bases separated only by a mere line on the middle of the back, and rather close behind them four round dots, which range in a transverse row between the hinder pair of the tubercular spots;* along the spiracular region the paler colouring of the lower part of the body is generally well contrasted with that above; the spiracles black, sometimes grey outlined with black; the upper lip greyish-brown, anterior legs the same colour though often spotted and tipped with black; the black spots on the side of the third and fourth segments occasionally vary both in number and shape.—William Buckler, Emsworth: *November 28th*, 1874.

Description of the larva of Noctua rubi.—On the 11th of July last, I received from Mr. Owen Wilson, of Carmarthen, half-a-dozen larvæ of this species about half-an-inch in length. They grew rapidly on dock, and by the 23rd of the month were full-grown, when I took down a description as follows:—Length about an inch and a quarter, and rather stout in proportion. The head has the lobes rounded, but the front rather flattened; it is slightly narrower than the second, and considerably narrower than the third, segment; body cylindrical, and distinctly tapering towards the head; segmental folds distinct, but not very conspicuous; the skin soft and smooth.

The ground colour is pale olive-brown freckled with darker brown; head smooth and shining, of two shades of wainscot-brown; a smoky-brown pulsating line, intercepted through its centre by a distinct pale line, forms the medio-dorsal stripe; a pale line, edged above and below with smoky-brown, forms the sub-dorsal lines; and along the spiracles, a pale line extends, edged above with smoky-brown, and below with a broad pale yellowish-brown band; the spiracles are distinct, black. The ventral surface, legs, and prolegs, are a semi-translucent dingy yellowish-green, freckled with minute brown dots.

The larvæ of several species of the genus *Noctua* seem very closely allied, but *rubi* is without the usual dark transverse marks characteristic of a number of them.

When this description was taken, several of the larvæ had already spun slight cocoons at the bottom of their cage, and changed to smooth shining-red pupæ, and on the 9th of the following month the first imago emerged, the others soon followed.—Geo. T. Porritt, Huddersfield; *January 8th*, 1875.

Additional captures of Deiopeia pulchella at Folkestone.—I have a very good specimen of *Deiopeia pulchella* captured in the Warren, in the latter part of September, 1874. The captor (a mere beginner) took two, and several others were seen. The second specimen is that referred to by Mr. Briggs, in Ent. Mo. Mag., No. 127. —Henry Ullyett, Folkestone: *January 14th*, 1875.

———— At the request of several entomologists, I record the capture of a fine male *Deiopeia pulchella;* it was taken in the Warren on the 26th October last, and came into my possession alive the day of capture; it is pronounced by Messrs. Briggs to be the darkest British specimen they have seen, the crimson spots on the fore-wings being particularly deep.—Walter Blackall, 8, Guildhall Street, *Folkestone: January*, 1875.

***Nonagria brevilinea*, Fenn, *Phycis Davisellus*, Newman, and *Grapholita grandævana*, Zeller.**—A short time since, I sent specimens of these three species to my friend Dr. Staudinger for examination, and have received his remarks upon them; he says:—

"*Nonagria brevilinea:* I never saw it before, it is a very good species, and very "distinct from all others known."

"*Phycis Davisellus:* This species has now been described four times. It is "without any doubt *Nephopteryx genistella*, Dup. Herrich-Schäffer was the second "who described and figured this species under the name of *ulicella*, from two males "found by the late Julius Lederer, in Andalusia,—the originals are now in my collection. Then I reared a single specimen in Andalusia from a larva found upon "*Ulex*, and as at that time I did not know much about the *Micro-Lepidoptera*, I "sent it to Professor Zeller, who thought it might be a new species, so I described it "the third time as *albilineella*, and Mr. Newman the fourth time as *Davisellus*. The "English specimens are a little darker than those from the South of Europe. I have "received it from Montpellier."

"*Grapholita grandævana:* Your No. 1 is, doubtless, this species, but not a "reared specimen. A friend of mine reared it on the sea coast near Stettin, in great "numbers. The larvæ feed on Coltsfoot *(Tussilago)*, and make curious long tubes in "the sand."—Henry Doubleday, Epping: *January 14th*, 1875.

Obituary.

Professor J. W. Zetterstedt. This veteran Swedish Entomologist died (we believe at or near Lund) on the 23rd December last, at the great age of 90, he having been born on the 20th May, 1785. For many years he was Professor at the University of Lund, and it is probable that his collections, which he retained to the last, will be deposited in the Museum of that Institution. Although the list of his separate publications is not lengthy, it includes several very valuable and laborious works on the Entomology of Scandinavia, and especially that of Lapland, which he visited for the purpose of investigating its insect-fauna. The most important of these works are the "Fauna Insectorum Lapponica," published in 1828; "Insecta Lapponica Descripta," published from 1838 to 1840; and the voluminous "Diptera Scandinaviæ" in fourteen volumes, appearing from 1842 to 1860. To the exactitude and excellence of his works, all who have occasion to use them will bear willing testimony; and to English Entomologists they have been, and are, of great service, owing to the similarity existing between our own insect-fauna and that of Scandinavia. By his death, a vacancy has been caused in the list of Honorary Members of the Entomological Society, he having been elected as long back as 1851. A similar vacancy occurs in the Honorary List of the French Entomological Society, which he joined in 1833, being accorded the higher distinction in 1858.

Review.

The Micrographic Dictionary. Third Edition. Edited by J. W. Griffith, M.D., Professor P. M. Duncan, F.R.S.; assisted by the Rev. M. J. Berkeley, M.A., F.L.S., and T. Rupert Jones, F.R.S. 8vo. London, John Van Voorst, 1874.

This laborious undertaking (which we have previously had occasion to notice during the course of its publication in parts) is now completed, and forms a volume of 845 pages, with 48 plates (mostly coloured), and very numerous wood-cuts. About sixteen years have elapsed since the publication of the second edition, and during that time, in no other branch of Natural Science has there been so much real and rapid progress as in that to which the microscope is so indispensable a necessity for minute research.

Embryology, Histology, minute external structure, and the development of Cryptogamic plants, have, each and all, proved themselves to be so intimately mixed up with all the important scientific questions of the day, that we can only surmise what Leeuwenhöck and other old naturalists would have been able to do, and what revolutions in ideas might have been caused in the last and preceding centuries, if optical science had then been equal to their powers of observation. At the present day, microscopists appear to be divided into two classes. First, those who, being in possession of a good instrument, and a miscellaneous assortment of objects, examine these latter *seriatim*, and end with no further benefit than does the child who is pleased with the varied images exhibited in a kaleidoscope. Secondly, those who work with a definite object:—and every real Naturalist will be found in this category. To either class this work will be indispensable. Those who make the microscope a toy will find it necessary to increase their pleasures (and, perchance, may be led to higher aims thereby); those who work seriously will find in its pages that help without which many valuable hours and days would be wasted.

ENTOMOLOGICAL SOCIETY OF LONDON: *7th December*, 1874.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Lieut. H. C. Harford, 99th Regiment, C. C. Dupré, Esq., of Coleridge Road, Holloway, and Owen Wilson, Esq., of Cwmffrwd, Carmarthen, were elected Members; and M. Greenwood, Esq., of Queen's Road, Dalston, a Subscriber.

Mr. E. A. Fitch exhibited several oak-galls, illustrating his notes at p. 109 of the present Vol. of this Magazine, together with others that he had not yet been able to determine.

Mr. Champion exhibited a fine collection of *Hemiptera* sent by Mr. J. J. Walker, by whom they were collected in various Mediterranean localities.

Prof. Westwood communicated a letter received from Mr. F. M. H. Stone, concerning damage occasioned to tea from Shanghai by a small beetle which proved to be *Niptus hololeucus;* also a letter from Prof. Forel, of Lausanne, stating that *Phylloxera vastatrix* had appeared at Pregny, in the Canton Geneva, on some vines that had been imported from England into the hot-houses of Baron Rothschild. With regard to a question put by Prof. Forel, as to whether out-door vines were infested in England, it appeared to the opinion of the meeting that the pest had only been observed here in hot-houses.

Mr. C. O. Waterhouse read "Synonymic Notes on Longicorn Coleoptera."

4th January, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Mr. S. Stevens exhibited a bred example of *Diloba cæruleocephala*, in which the stigmatiform markings, ordinarily so conspicuous, were entirely wanting, and a *striking variety of Hybernia defoliaria*, both from Brighton.

Mr. F. Smith exhibited a fine collection of *Hymenoptera* sent from Calcutta by Mr. Rothney. It included may remarkable species, the most interesting being a new species of *Nomia* with capitate antennæ, and *Rhynchium transversum* attacked by *Stylops.*

Mr. Grut exhibited a number of very small *Mantidæ* in spirits, sent from Sarawak (Borneo) by Mr. De Crespigny, who termed them "Mantis-Ants," and stated that they appeared in a column marching across his table, each with its tail upturned. Some (at least) of the specimens had decided rudimentary wings; but it was suggested that they formed a newly-hatched brood.

Mr. McLachlan mentioned that on the evening of the 3rd January, barely two days after the breaking up of one of the most severe and continuous frosts experienced for many years, the gas-lamps in his neighbourhood were frequented by hosts of *Cheimatobia brumata*, and asked the opinion of the Members present as to whether they had just emerged from the pupa-state, or had lived through the three weeks of hard frost; a point upon which there seemed to be some difference of opinion.

NOTES ON *COLEOPTERA* FROM SOUTH MOROCCO.

BY TROVEY BLACKMORE.

During a stay of some weeks in the early part of 1874, at Mogador (S.W. coast of Morocco), I obtained many *Coleoptera;* and on my return to England, my friend Mr. H. W. Bates added to my collection a number of specimens captured by Dr. Hooker during his botanical explorations in the Great Atlas in 1871. As Mogador has been but little explored entomologically, and Dr. Hooker's specimens were collected in a district never previously visited by a naturalist, the following record, supplemented by diagnoses by Messrs. Bates and Wollaston of several of the new species detected, may not be uninteresting.

My own collection was made under adverse circumstances, the winter being an unusually dry one, and as such, unfavourable for the occurrence of *Coleoptera;* and considerations of health not allowing me to make long excursions, or to work very hard. The unsettled state of the district at the time of my visit, moreover, rendered it imprudent for a stranger to go to any distance from the town, unless under the protection of a mounted escort: my collecting was therefore confined almost exclusively to the immediate neighbourhood of the town, which looks about as unpromising a spot for a coleopterist as can well be conceived. The town is built on a reef of rocks running out to sea, and, seen from the anchorage in the bay, the surrounding land for many miles presents nothing to the eye but a succession of utterly barren sand-hills. Such is, in fact, the character of the country, except that, immediately behind the town, on its eastern side, is a long strip of flat, clayey ground, somewhat below the sea level, which, during the prevalence of certain winds, is covered to the depth of a few inches with brackish water, which percolates beneath the sand-hills lying between it and the beach. This water, however, speedily disappears, and the surface of the ground is then covered with *Confervæ* and white crystals formed by evaporation. At the edge of this marsh (if it may be so called) is a scanty growth of species of *Salicornia*, and plants of kindred genera. These, with a few grasses and small plants found growing in moist spots caused by the leakage from an aqueduct by which Mogador is supplied with fresh water, comprise all the botanical wealth to be met with in a two miles' radius of the town. To this barren region succeeds a hilly district, cultivated in the immediate neighbourhood of the "douars," or native villages, but for the most part covered with a thick jungle of *Lentiscus*, dwarf oaks, argan trees (*Argania sideroxylon*), and the single-seeded white broom (*Retama monosperma*), replaced in the neighbourhood of the streams, which have their sources in the spurs of the Atlas, by tamarisks, oleanders, and other moisture-loving shrubs. I was only able to visit this fertile region on a few occasions, and under circumstances which did not admit of my devoting much attention to its insect-fauna, otherwise I should have doubtless been able to bring back a far more extensive collection. Notwithstanding these drawbacks, I have a goodly number of specimens, including many species generally considered rare, and a few new to science. A complete list of my captures would occupy undue space, and I must therefore confine my observations to the most interesting species.

Of *Cicindelidæ* I only took *Cicindela flexuosa*, F., which occurred in profusion near the sea shore, but I saw several of a large dark-coloured species.

Among the *Carabidæ*, my most important capture was a series of *Carabus stenocephalus*, Fairm., allied to the far commoner *C. cychrocephalus*, Fairm., which occurs on the more northerly section of the Atlantic sea-board of Morocco. My specimens were mostly taken when feeding on snails (*Helix erythrostoma*, *pisana*, &c.), with which the stems and branches of all the shrubs in the fertile region are always covered. I took several specimens, however, on the barren sand near the town. Damp spots near the aqueduct yielded two Eastern species, *Metabletus fuscomaculatus*, Mots., and *Tetragonoderus arcuatus*, Dej.; the latter, reputed to be met with in Egypt in dry sand, occurred in considerable numbers. In similar localities I took the widely distributed *Stenolophus teutonus*, *Anisodactylus binotatus*, *Calathus micropterus*, *Anchomenus pallipes*, *Anchomenus marginatus*, and a variety of *Acupalpus Lucasi*, Gaub., differing from typical examples in its larger size, and in the pale basal spot on the elytra not extending to the suture. By the borders of the salt marsh I met with *Dyschirius numidicus*, Putz., *Dichirotrichus obsoletus*, Dej., and one *Daptus vittatus*, Fisch. In the same spots, *Pogonus chalceus* was common under dry *Confervæ*, as was *Pogonus Grayi*, Wollast., a species also occurring in saline places in the island of Lanzarote. During an excursion to a village about twelve miles from Mogador, I took several of *Scarites gigas*, and a couple of *Platyderus tenuistriatus*, Wollast., hitherto represented by the unique imperfect type in the Wollastonian collection in the British Museum, captured by Dr. Crotch in Teneriffe twelve years ago. Single specimens of *Sphodrus Favieri*, Fairm., and *Læmosthenes venustus*, Clairv., occurred near the walls of the town.

Of water-beetles I obtained but few. Pale varieties of *Hydroporus Ceresyi*, Aubé, were abundant in brackish pools at the edge of the salt marsh, which localities also yielded *Philhydrus politus*, Küst. (a Spanish species), *Helochares lividus*, *Berosus affinis*, and the S. European *Ochthebius pilosus*, Waltl. I met with a single specimen of a still undetermined *Hydroporus* in the dry bed of a stream, the "Wad-Diarbet," a few miles south of Mogador; and *Cyclonotum orbiculare* was abundant at the roots of *Samolus Valerandi* growing in damp places near the aqueduct.

The *Brachelytra* were far more abundant, but the species taken (about twenty-five in number) were for the most part of general distribution throughout Europe and the shores of the Mediterranean. I may, however, mention *Aleochara grisea*, Kr., *Dolicaon hæmorrhous*, Er., *Oxytelus plagiatus*, Rosenh., and a *Pæderus* identical with a species from the Cape of Good Hope, unnamed in Dr. Sharp's collection. Of this insect I captured three specimens under stones in the dry bed of the "Wad-Diarbet." *Bledius taurus* was abundant, burrowing under stones in the salt marsh; *Stenus guttula* occurred in profusion near the aqueduct, while the widely distributed *Philonthus xantholoma* and *sericeus* were common under sea-weed.

Of *Clavicornes*, the minute *Ptenidium punctatum* occurred commonly under sea-weed and marine *rejectamenta; Hister major* and 12-*striatus* were not unfrequent near the public slaughtering-place, where also I occasionally met with the conspicuous *Saprinus semipunctatus. S. chalcites* and *conjungens* occurred under dry camel's dung on the sand-hills.

The *Lamellicornia*, as might be expected in a district destitute of pasture and vegetation in general, were but scantily represented. I met, however, with *Ateuchus sacer* in some numbers at a locality a few miles inland, where a few cattle are kept, and where I also obtained *Onthophagus circumscriptus*, Fald., and varieties of *O. taurus*. I took single examples of *Aphodius affinis*, Luc., and *A. hydrochœris*, as well as one of a small species which I noticed in the collection of Signor Olcese at Tangier, labelled *Aphodius politus*. The Mediterranean *Psammodius sabulosus* was common on the sand-hills; and, on hot days during the latter part of my visit, *Pachydema anthracinum* was not unfrequent, flying in the sunshine. I was also fortunate in capturing a specimen of *Oxythyrea femorata*.

Of the *Malacodermata*, I met with but a single representative in the new species of *Melyrosoma*, which is characterized by Mr. Wollaston under the name of *M. Blackmorei*.

The *Tenebrionidæ* were far more extensively represented, and my most numerous, and in some respects most interesting, captures appertained to this family. As is the case with all Moorish towns, such rubbish and animal or vegetable refuse as is not allowed to rot in the street, is carried out on donkeys' backs, and deposited immediately outside the city walls, the result being the formation of a series of extensive mounds far from pleasing to the sight, and exhaling odours anything but pleasing to the smell. But, however disagreeable they may be in these respects to the ordinary traveller, these accumulations form excellent hunting-grounds for the coleopterist. It was in these rubbish heaps, or their vicinity, that I made the acquaintance of what has hitherto, I believe, been considered as an essentially Canarian species—*Eulipus Brullæi*, Wollast.,—which occurred very freely under pieces of old matting and decaying, disused, rush baskets and panniers, round which sand had drifted. In similar habitats I met with five species of *Blaps*, including *B. gages, sulcata, prodigiosa*, and a species allied to, or a variety of, *B. Haroldi*, Kraatz. In the neighbourhood of these mounds I also captured *Morica Favieri*, Luc., *Akis elegans*, Charp., and *Scaurus tristis*. *Pachychila* was represented by a few specimens of *P. sabulosa*, Luc., *Salzmanni*, Sol., and *Kunzei*, Sol. (?), and by *P. impunctata*, Fairm., in considerable numbers. It is possible that I may have more than one species under the latter name, as I collected some specimens differing greatly in size from normal types, though apparently con-specific in other respects. Of the true *Phaleria bimaculata*, Herbst (not the spotted variety of *P. cadaverina*, sometimes so named), I captured two specimens under sea-weed, where also I met with an example of the cosmopolitan *Alphitobius diaperinus*. In the town itself, I met with *Paivæa hispida*, Brullé, hitherto reputed to occur only in Lanzarote and Fuerteventura, the two eastern islands of the Canarian Archipelago. On submitting my specimens to Mr. Wollaston for comparison with Canarian individuals, he returned them as "*P. hispida, var. b, attrita,*" with the following diagnosis :—"*Prothoracis* "*angulis posticis paulo magis exstantibus, elytrorumque punctis vix obsoletioribus.*" They can hardly, however, be regarded as more than (if so much as) a geographical variety of the Canarian form, the degree of punctuation being variable in the latter. *Pimelia* was represented by *P. cordata, læviuscula, Fairmairei,* and *rotundipennis,* Kraatz; the last named being the most abundant. It varies excessively in size, specimens captured near the town being only half the size of those taken at a little distance inland. The fine *Pimelia Fairmairei* was locally abundant at a spot called "The Sultan's garden," about three miles S. E. of Mogador, where I also met with a few specimens of *Blaps ecaudata,* Küst. *Halonomus salinicola,* Wollast., abundant in Lanzarote, occurred in some numbers under stones at the edge of the salt marsh; where also, under *rejectamenta,* I met with *Anthicus hispidus,* Rossi, and two undetermined species of that genus.

The season of the year was unfavourable for the occurrence of *Curculionidæ,* and I have few captures to record in that family. I may, however, mention *Cneorhinus barcelonicus,* Herbst, not unfrequent on *Retama monosperma,* and a *Mecinus* and *Cleonus* probably new. The latter is allied to *C. marcidus,* from which it is distinguished by its larger size and differently shaped rostrum.

Of the *Phytophaga,* I met with *Timarcha rugosa* and *Chrysomela diluta,* both found sparingly near the town.

My list is brought to a close by the mention of the frequent occurrence of the universal *Coccinella 7-punctata* and a *Scymnus.* In concluding it, I may remark that I shall be happy to furnish any intending explorer of the Mogador district with every information in my power.

THE *COLEOPTERA* obtained by Dr. Hooker's party were few in number, the energies of the party having been directed towards the formation of the rich herbarium which they brought to this country; but the collection included several species new to science.

Those obtained in the plain of Morocco consisted only of such species as are widely distributed over the country, and comprised *Amphicoma Goudoti,* Cast., *Morica Favieri,* Luc., *Agapanthia irrorata,* F., *Labidostomis rubripennis,* Luc. (in considerable numbers), and *Chrysomela Banksi.*

In the lower and middle regions of the eastern range of the Atlas chain (3,000 to 6,000 feet), described as possessing a singularly rich and varied flora, several insects of greater interest occurred. These include two species of *Pimelia*; one, described hereunder as *P. malleata,* Wollast., allied to *P. monticola,* Rosenh., which occurs in the sub-alpine regions of the Sierra Nevada; the other, of which only one specimen was obtained, somewhat resembling the Canarian *P. serrimargo,* Wollast., from which, however, it seems distinct in several respects, and I have little doubt that it will prove to be a new species. A single specimen of the *Gymnetron,* described by Mr. Wollaston as *lanuginosum,* was also obtained. In addition to these, Mr. Bates has specimens of *Calathus circumseptus,* Germ., a common species in Mediterranean districts; and one of *Calathus opacus*, Luc., an African form of *C. melanocephalus*. The *Lamellicornia* were represented by *Aphodius sordidus* and *Oxythyrea squalida*, and by a single specimen of an *Ateuchus*, probably referable to *A. laticollis*, F., but distinguished by the nearly obliterated elytral sulci, which, however, are plainly distinguishable from the glossy insterstices by their opaque surfaces. An undetermined *Lampyris* was common, and I have a few specimens of *Morica Favieri*, Luc., *Mylabris oleæ*, Cast., and *Chrysomela Banksi*, from these mountainous regions. The rich forests with which the slopes of the Atlas were formerly covered, to a considerable elevation, have now almost disappeared, and the only wood-haunting species obtained was an example of the widely distributed *Apate capucina*.

The heights of the Djebel-Tezah yielded six species (of which, half appear to be new), obtained, as I am informed by Dr. Hooker, "under stones" at elevations of from 9,000 to 11,000 feet; one, at least (which I imagine to be the new *Hopatrum*), occurring at the very summit of the mountain (11,500 feet). The species collected comprised *Cymindis Hookeri*, Bates, n. s., *C. leucophthalma*, Luc., *Hopatrum Hookeri*, Woll., n. s., specimens of *Pachydema* and *Otiorhynchus* not in sufficiently perfect condition to be determined, and an *Agabus*, considered by Dr. Sharp, who has carefully examined it, to be absolutely con-specific with *A. consanguineus*, Wollast., but which seems to be far more shining (or less alutaceous) than typical examples found in the islands of Teneriffe, Gomera, and Palma, of the Canarian group.

Before ending this catalogue, I must mention that Mr. Ball, one of Dr. Hooker's party, obtained, at Mogador, specimens of *Sphæricus simplex*, Wollast., at roots of *Spargularia fimbriata*, and a *Podagrica*, apparently not referable to any described species. I am much indebted to Messrs. Bates and Wollaston and Dr. Sharp for their careful examination and determination of many of my doubtful species.—Trovey Blackmore, The Hollies, Wandsworth, S.W.: *December*, 1874.

[In the above notes, Dr. Hooker's captures are stated to have been made in the eastern range of the Atlas mountains, whereas they were made in the eastern portion of the *western* section of the Atlas range explored by Dr. Hooker.—T. B.]

DESCRIPTIONS OF NEW SPECIES REFERRED TO IN MR. BLACKMORE'S NOTES ON *COLEOPTERA* FROM SOUTH MOROCCO.

BY H. W. BATES, F.L.S., AND T. V. WOLLASTON, M.A., F.L.S.,

Cymindis Hookeri, *sp. n.*

C. melanocephalæ (Dej.) *affinis; sed minor, gracilior, tota rufo-picea, breviter dense pubescens; capite subcrebre punctato; thorace angusto, cordato, angulis posticis obtusis, fere rotundatis, suprà toto punctato; elytris basin versus angustatis, obtuse truncatis, punctulato-striatis, interstitiis omnibus punctulatis: palpis, antennis, pedibusque rufis.* *Long. corp.* 8 *mill.*

Distinguished from *C. melanocephala*, Dej., and the allied species, by its slender form and uniform pitchy-reddish colour, without trace of humeral spot on the elytra. The labial palpi are rather strongly securiform. The thorax is relatively small, cordate, with the sides very slightly sinuated towards the base, and the posterior angles scarcely perceptibly advanced and obtuse. The elytral interstices are uniformly punctulated; the punctures much stronger than in *C. melanocephala*, so that the three larger punctures of the third interstice are with difficulty distinguished.

Atlas: Jebel-Tezi; alt. 10,000 feet. H. W. B.

Genus MELYROSOMA.

Wollaston, *Ins. Mad.*, 253 (1854).

MELYROSOMA BLACKMOREI, *sp. n.*

M. lineari-elongatum, atrum, pilis brevibus demissis griseis vestitum; capite prothoraceque dense ruguloso-subpunctatis, illo magno, subtriangulari-quadrato, convexo, hôc ad latera conspicue subrecurve marginato, antice in medio distincte canaliculato; coleopteris valde profunde ac densissime subseriatim punctatis (punctis maximis), suturâ costisque tribus utrinque fortiter elevatis; antennis basin versus tarsisque (elongatis) paulo dilutioribus. *Long. corp. lin.* 2½.

Habitat, Morocco, *in loco salino juxta oppidum* Mogador *a Dom.* T. Blackmore *captum, cujus in honorem nomen triviale proposui.*

The large size of this *Melyrosoma*, as compared with the representatives of the group hitherto made known (all of which are peculiar, apparently, to the Atlantic islands), in conjunction with its rather parallel-elongate outline, its considerably developed head, the somewhat recurved edges of its prothorax, and the very deep and coarse punctures of its elytra (on each of which latter there are the three usual elevated costæ), will sufficiently distinguish it. A single example was found by Mr. Trovey Blackmore "under a stone in the salt-marsh behind the town of Mogador, in company with *Halonomus salinicola;*" but that particular habitat was clearly only an accidental one, the members of the genus being eminently flower-infesting in their modes of life.

T. V. W.

Genus GYMNETRON.

Schönherr, *Curc. Disp. Meth.*, 319 (1826).

GYMNETRON LANUGINOSUM, *sp. n.*

G. paralello-oblongum, depressum, immaculatum, atrum, subopacum, longe cinereo-nigroque pilosum, antennis (capitulo obscuro excepto) tibiis tarsisque rufo-ferrugineis; capite prothoraceque transverso densissime rugoso-punctatis, rostro ad apicem leviter attenuato, oculis prominentibus; elytris (pygidium haud tegentibus) depressis, ad latera parallelis, argute angusteque subcrenato-striatis, interstitiis punctulato-rugulosis; scapo longiusculo; tibiis robustis.

Mas: femoribus subtus dente acuto armatis.

Fœm.: adhuc latet. *Long. corp. lin. vix* 2.

Habitat, Morocco, *in montibus* "Atlas" *captum.*

Judging from M. Brisout de Barneville's Monograph (Ann. Soc.

Ent. Fr., 1862), the present *Gymnetron* must be closely allied to *G. pilosum*, Besser, a species which occurs in southern Europe and the north of Africa; nevertheless, it would appear to be not quite so large, and to have the antennæ (except the club), the tibiæ, and the tarsi, of a bright rufo-ferruginous; and its elytra are, I suspect, more straightened at the sides. It is depressed and black, and its entire surface is densely clothed with elongated cinereous hairs, which are intermingled with a few darker ones; and its scape is somewhat lengthened, and its tibiæ are unusually robust, for a member of this genus. T. V. W.

Genus PIMELIA.

Fabricius, *Syst. Ent.*, 251 (1775).

PIMELIA MALLEATA, *sp. n.*

P. parva, subnitida; capite prothoraceque distincte et argute asperato-punctulatis (punctis in medio gradatim minutioribus, sed antice et versus latera majoribus, necnon in hôc in tuberculos magnos transientibus), hôc brevi, ad latera valde rotundato, basi sinuato, et utrinque in disco plus minus irregulariter inæquali: scutello parvo, scutiformi; elytris valde malleato-inæqualibus, aut transversim grosse rugatis, fere punctorum, granulorum costarumque carentibus; pedibus nigro-piceis.

Long. corp. lin. 6–6½.

Habitat in montibus "Atlas," *a peritiss.* J. D. Hooker, M.D., *parce deprehensa.*

A very distinct little species, which may easily be known by its comparatively small size (for a *Pimelia*), by the conspicuous subasperated punctules of its head and prothorax (the latter of which is considerably rounded at the sides), by its rather small and scutiform scutellum, and (more particularly) by the structure of its elytra—on which the punctures, tubercles, and costæ are almost obsolete, but which have their entire surface coarsely wrinkled, or transversely *malleated*—the inequalities, however, becoming less decided as they approach the scutellum. The discovery of this species is due to the researches of Dr. J. D. Hooker, who met with it, as I am told by Mr. Blackmore, in the "middle regions" of the Atlas range.

T. V. W.

Genus HOPATRUM.

Fabricius, *Syst. Ent.*, 76 [*script.* Opatrum] (1775).

HOPATRUM HOOKERI (Blackmore, *in litt.*), *sp. n.*

H. oblongum, nigrum, rugulosum, opacum, subcalvum (sc. subtilissime, brevissime, et parcissime griseo-pubescens); genis ante oculos valde exstantibus, rotundato-angulatis; capite prothoraceque dense, profunde, et confuse asperato- (aut granulato-) punctatis, hôc lato, ad latera æqualiter rotundato, angulis posticis acutis, postice in *medio obsolete carinulato; elytris antice prothorace angustioribus, humeris acute angulatim exstantibus, obsolete punctato-striatis, minute sed vix dense granulatis, interstitiis alternis obsolete obtuse elevatis; antennis tarsisque rufo-piceis.*

Long. corp. lin. vix 4.

Habitat editiores montium "Atlas," *in ascensu* Djebel-Tezah *(inter* 9,000 *et* 11,000 *s. m.) a clariss.* Doct. J. D. Hooker *repertum; necnon in honorem captoris amicâ mente a Dom.* Blackmore *dicatum.*

Well distinguished amongst the *Hopatra* by its rather largely developed and equally-rounded prothorax (which, together with the head, is closely and coarsely subpunctate-granulate), by its nearly bald surface, and by its elytra (which are a little narrower anteriorly than the prothorax, and have their humeral angles acute and prominent) being less densely sprinkled with much smaller granules, and with their alternate interstices obtusely and obsoletely raised. I have had much pleasure in retaining for it the name proposed by Mr. Blackmore, who is desirous to place on record the obligations of entomologists to Dr. Hooker for the interesting *Coleoptera* brought by him from the hitherto unexplored regions of the Atlas. T. V. W.

ON THE ARRANGEMENT OF THE BRITISH *ANTHOMYIIDÆ*.

BY R. H. MEADE.

(*concluded from page* 203.)

MYDÆA.—I have placed in this genus a number of species mostly of considerable size and oval form, which differ from those in the genus *Hyetodesia* by having naked eyes, and from those in *Spilogaster* by having unspotted bodies. Macquart placed them in the second division of his genus *Aricia;* and Schiner and Rondani have included them in *Spilogaster;* they appear, however, to form a more natural group than many others that have been raised to the rank of genera. I have adopted the name of *Mydæa*, as it had been applied by Desvoidy to *M. pagana* and to one or two others of the leading species in the genus.

In this and the two preceding genera two thoracic bristles are placed in front of the transverse suture, in a line with four behind it, in all the British species I have examined, with the exception of *Hyetodesia læta*, which has only three behind the suture.

SPILOGASTER.—This genus, as its name implies, is characterised by the species having the body spotted; four, or sometimes six, distinct and often triangular spots being arranged in pairs (one on each side of the median line) on the dorsum of the second, third, and sometimes of the first, segments of the abdomen. The arista is always furnished with distinct, though sometimes short, hairs, and the eyes are naked.

The number of thoracic bristles in the line beyond the suture (two always being in front) varies from three to four; they are always constant in number, however in the same species, and are therefore of great specific value, sometimes enabling two otherwise closely allied species to be at once pronounced distinct.

The flies in this genus are generally smaller, more oblong in shape, and altogether less highly developed than those in the preceding genera. The species are rather numerous and difficult to name.

HYDROPHORIA.—This genus, of which *H. conica* is the type, is characterised by the species having plumose antennæ, naked eyes, unspotted oblong or oblong-conic bodies, and subanal genital appendages in the males. There are four thoracic bristles behind the suture, the last or hindmost of which is always smaller and weaker than the others. This is only a small genus.

DRYMEIA.—This genus is very well marked, but only contains a single species, which may at once be recognised by the elongated, bent, and pointed proboscis. This fly, named *D. hamata*, is black and very hairy, has the thoracic bristles arranged two in front and three behind the suture, and has the arista furnished with very short hairs, by which character it forms a connecting link to the species in the next sub-division. *D. hamata* may be found in some places in abundance in the autumn, upon the flowers of the common hawkweed (*Hieracium pilosella*) and other *Compositæ*.

ONODONTHA and HYDROTÆA.—These two genera may be mentioned together, as they only differ by having the eyes hairy in the former and naked or very slightly tomentose in the latter. The species of both may at once be known from all the other *Anthomyiidæ* by the anterior femora of the males being furnished with one or two teeth near the end. The corresponding tibiæ are also mostly notched.

The dorsal thoracic bristles are six in number, two in front and four behind the suture. These two genera form a very natural group. *H. meteorica* and other allied species swarm in woody places, and torment horses, especially in damp warm weather.

LASIOPS.—This is a very artificial genus, formed by Meigen to include a few aberrant species which have a naked arista and hairy eyes. One (*L. cunctans*) closely resembles an *Onodontha*, only the anterior femora are without teeth; another is very like a Hyetodesia, with the exception of having a naked arista; and a third, which is very common, is so similar to an *Anthomyia*, except in its hairy eyes, that it has been named by Rondani *L. anthomyinus.*

OPHYRA.—The typical species in this small genus (*O. leucostoma*) is characterised by the curved hind legs, dark metallic blue-black oval body, naked arista and eyes.

LIMNOPHORA.—This genus is so closely related to *Spilogaster*, that it is rather difficult to define the limits between them. Thus Schiner includes in *Limnophora* all those species with spotted oval or oblong bodies, and naked eyes, which have a short haired arista. Rondani, on the contrary, restricts it to those only which have quite, or nearly quite a naked arista, and, at the same time, have the tibiæ of the middle pair of legs furnished with one or more setæ or short bristles on the middle of their external as well as posterior surfaces, in addition to the usual apical ones. He thus contracts the genus within very narrow limits, and I think it better to do so, as we can then define it accurately; for it is found that in all the spotted species with a plumose arista, whether long or short haired,forming the genus *Spilogaster* proper, the middle tibiæ have no bristles on their external surfaces. In this and the two preceding genera there are six thoracic bristles.

HOMALOMYIA.—This is one of the best defined and most natural genera in the family. The species may be recognised at once by having a smooth semi-circular head, without any projecting angles, and by the eyes being very large and extending much lower over the face than in the species of other genera, so as to cover the cheeks. The alulets are small, but the lower scale is not quite covered by the upper one. The abdomen is rather elliptical and flattened, and is very commonly figured on the dorsum in the males, with a central line of triangular marks. The shortness of the anal vein of the wings, with the curving of the axillary vein towards it extremity, is very characteristic of this and the following genus.

The males of these common little flies, the best known of which are *H. canicularis* and *H. scalaris*, are often seen sporting in troops in the air in summer, performing aerial dances after the manner of the *Tipulidæ.*

AZELIA.—This small genus, named *Atomogaster* by Macquart, may be known at once from *Homalomyia* by the species being of a velvety-black colour in the males, and having a narrow cylindrical abdomen marked by three rows of dots, which are so arranged as to form a series of triangles.

The males of these pretty little flies are usually found in greater abundance than the females, but I have frequently caught the latter upon the droppings of horses and cows in the roads and fields. They doubtless deposit their eggs in the dung.

ANTHOMYIA.—The restricted genus *Anthomyia* contains the last batch of species in the division, having the scales of the alulets of unequal size. The flies comprised in it have a bare, or nearly bare, arista, and differ from those in the two preceding genera by having the head more or less angular; the face and epistome often projecting considerably. They also have the anal vein prolonged to the margin of the wing. The shape, as well as the colour and markings, of the abdomen, vary greatly, and the genus is not upon the whole a natural one, but requires subdivision. The typical species of this genus are *A. pluvialis* and *A. radicum.*

In the last three genera, the species, with a few exceptions, have five dorsal bristles upon the thorax, two in front and three behind the suture.

HYLEMYIA.—This genus so closely resembles *Hydrophoria*, chiefly differing by the smaller and equal size of the scales of the alulets, that the two have been included in one by Schiner and others.

The abdomen is oblong or rather cylindrical, and generally furnished with subanal appendages. The dorsal bristles are five in number, but, as in *Hydrophoria*, a sixth smaller one is often placed behind the others. This genus includes a large number of species.

CHORTOPHILA.—This is also a large genus. Many of the species resemble, in general appearance, those of *Hylemyia*, having cylindrical bodies and subanal appendages, but differ by the arista being bare; others are closely allied to the *Anthomyiæ*, but have the scales of the alulets of equal, instead of unequal, size. Many of the species in both these last genera are small and difficult to name, the descriptions of authors not being sufficiently precise, or not based upon characteristic points of structure.

ERYPHIA.—I have included this genus in the British list, but I have not yet seen a specimen of the single Alpine species which it contains.

LISPA.—In this and the succeeding genera the eyes are widely separated in both sexes. The species contained in the present one may at once be recognised by the form of the palpi, the extremities of which are dilated into flattened knobs. They are not common.

Caricea.—This and the four succeeding genera have all been included by Meigen, Macquart, Schiner, and others, in the genus *Cænosia;* but they differ from each other, as I have pointed out in the analytical table, by the relative size of the alulets, as well as by the state of the arista. These genera, upon which I shall not further dilate, include a considerable number of small flies, many of them found by sweeping among grass and herbage. They are of various shapes and colours, and only agree in having the eyes distant in both sexes. Their bodies are mostly spotted. The number of dorsal bristles varies considerably in the different species; thus there is only one in front of the suture, and three behind it, in *Caricea tigrina* and *Cænosia sexnotata;* while in *Caricea ciliacosta* and *Cænosia nigripes* there are two in front and four behind: again, other species, as *Cænosia meditata,* have two in front and three behind; while, therefore, these dorsal bristles are very valuable specific characters, they are here of no use in a generic sense.

In concluding these few remarks upon the *Anthomyiidæ,* I beg to say that I shall be much obliged to any entomologist who will forward any specimens of this family for my inspection, and I will undertake to return them named as accurately as is in my power.

Bradford, Yorkshire: *December* 1*st,* 1874.

ON *ASPHONDYLIA ULICIS,* TRAILL.

BY G. H. VERRALL.

In the number of the Scottish Naturalist for October, 1873, Mr. J. W. H. Traill describes a gall found on *Ulex europæus* on Scotston Moor, near Aberdeen, and slightly describes the perfect insect, which he names *Asphondylia ulicis.* Thinking a more detailed description advisable, in order to confirm Mr. Traill's name, I wrote to Mr. W. A. Vice asking for specimens, and he sent me two long ago; but, owing to their having fared badly in travelling, I did not attempt to describe them. Last August, I was collecting in company with Mr. J. Scott between Poole and Bournemouth, and when glancing over a few *Diptera* he had in his collecting bottle, I remarked that one resembled the *Asphondylia* sent by Mr. Vice, and, looking at the first piece of furze by my side, I noticed the galls in abundance. Upon my return home, I found that when I visited Bournemouth in July, 1871, I had caught half-a-dozen of the insect, having, no doubt, been attracted by its large size for a *Cecidomyia.* With the help of these, I therefore give a short description.

ASPHONDYLIA ULICIS, Traill, Scot. Nat., ii, 172 (1873).

♂ ♀; brownish-black, paler on the breast-sides and about the humeri; frons, face, and palpi yellowish; abdomen shining dark brown, sides generally paler, male genitalia yellowish, of moderate size, ovipositor rather short, needle-shaped, deep yellow; antennæ in both sexes 13 (2 and 11) jointed, not quite so long as the body, blackish, each joint after the two basal ones slightly decreasing in length up to the *two last joints*, which are equal, stouter, and distinctly *shorter than the rest*, thus *forming a slight knob;* the antennæ of the female seem slightly the longest. The halteres and legs in dried specimens are generally yellowish, the tarsi being darker, but they vary in all stages up to blackish-brown, the coxæ being somewhat greyish. Wings iridescent, slightly greyish, the third longitudinal vein ending in the tip of the wing, being slightly curved near its tip, the small transverse veinlet which should connect this vein with the one above it near its base seems altogether absent, at least, I am unable to detect it in the eight specimens I have before me; the insect in best condition has the costa densely fringed with blackish-yellow hairs, and the disc of the wing moderately clothed with dark coloured hairs, but all these seem to rub off very easily.

Length, 2¼ lines; expanse of wings, about 5 lines.

All the above notes are made from dried specimens.

Bred from galls which closely resemble flower-buds, but which are larger and more inflated; "monothalamous, enclosing a large cavity "in which there is not a trace of the inner whorls of the flower. Walls "lined with a short white pubescence, on which the larva feeds" (Traill, *l. c.*). I expect this species is very common, but overlooked, as the first time I searched for it after making its acquaintance at Aberdeen, I found it in abundance, though nearly 500 miles away. In some of the galls at Bournemouth was a large whitish larva, many times the size of the *Asphondylia* larva, from which came I suppose some Hymenopterous parasites which I found when looking at some old galls in a box. Query—can they get sufficient nourishment from one larva or gall?

I believe this is the first gall reported to be found on the furze (*Ulex europæus*); but though, the genus *Asphondylia* is still a very small one, species of similar habits are described from *Sarothamnus scoparius*, *Cytisus austriacus*, *Genista germanica*, and *Ononis spinosa;* *A. sarothamni*, Lw., is smaller than *A. ulicis*, and has different antennæ, the male having them 2 and 13 jointed, with the terminal joint only very small and round, while the female has them 2 and 12 jointed, much shorter than in the male, and still smaller at the tip; the ovipositor seems also much longer. *A. cytisi*, Frfld., is about the right size, but has the antennæ 2 and 10 jointed, with the terminal joint short. *A. genistæ*, Lw., is also about the right size or even larger, but is insufficiently described, being only distinguished in its descriptions from *A. sarothamni* by its greater size, and by the different habitat of the larva; *A. ononidis*, Fr. Lw., has the antennæ 2 and 12 jointed, and all the 12 joints of equal length. A comparison with the species not infesting the *Papilionaceæ*, or those described by Walker without any notice of their habits, is unnecessary, as *A. ulicis* is not likely to be confounded with the former, and cannot be identified with the latter without comparison of types.

The Mulberries, Denmark Hill, London, S.E.:
February 8th, 1875.

DESCRIPTIONS OF *RHOPALOCERA* FROM MADAGASCAR.

BY W. C. HEWITSON, F.L.S.

Mr. Henley Smith has received a collection of butterflies from Madagascar, taken by Mr. Crossley. The collection, although abounding in fine species, does not, unfortunately, contain much that is new. Of these, I give descriptions of the most remarkable. There are specimens of the rare *Hæteropsis Drepana* figured in the "Genera," and with them one example which, though very different in colour, is no doubt the female. This I have also described below.

PAPILIO MANGOURA, *sp. n.*

Upper-side: black. Both wings crossed at the middle by a common grey-blue band, broadest at the middle, commencing at the costal margin of the anterior wing, where it is furcate, and ending near the anal angle of the posterior wing, where it is also furcate, its outer border dentated on the anterior wing, sinuated between each pair of nervures on the posterior wing; both wings spotted with white on the outer margins. Anterior wing with a sub-marginal series of white spots. Posterior wing tailed, the end of the tail marked by a minute white spot, a small spot irrorated with white above the anal angle.

Under-side: rufous-brown. The band of the upper-side represented on the anterior wing by lilac-white scales and a grey spot on the inner margin; on the posterior wing by a narrow, straight band, irrorated with lilac-white.

Exp., 3 $\frac{4}{10}$ inch.

At first sight this species appears as though it belonged to the *Nireus* group. It is, however, more closely allied to *P. Lalandii.*

MELANITIS MASOURA, *sp. n.*

Upper-side: ♀, white, slightly tinted with lilac and yellow. Both wings dentated on the outer margin. Anterior wing with the costal margin dark brown, broken into spots towards the apex; marked in the cell and below it by a yellow spot. Posterior wing deeply dentated; some spots of the under-side seen through.

Under-side: white. Anterior wing with the yellow spot as above, the costal margin spotted with black chiefly near the base, marked by a small ocellus between the first and second branches of the median nervure. Posterior wing undulated with black on the costal and inner margins, crossed near the outer margin by six black ocelli, irrorated with white or yellow, the pupil white, the outer margin and a submarginal line black; three or four indistinct spots of brown between the ocelli and the outer margin.

Exp., $3\frac{1}{10}$ inch.

HÆTEROPSIS DREPANA, ♀.

Upper-side: white tinted with yellow. Anterior wing with a brown spot at the end of the cell, the apex broadly dark brown, pointed as in the male, and marked by two minute white spots, a band of brown near the outer margin; a black ocellus with white pupil between the first and second branches of the median nervure.

Under-side: rufous-white, undulated throughout with dark brown. Anterior wing with the apex brown, marked by three white spots, an indistinct band from the apex to the inner margin before its middle. Posterior wing with a similar transverse band, clouded with rufous-brown, which is marked by some minute white spots near the anal angle.

Exp., $2\frac{1}{10}$ inch.

The male, though brown below, is marked as in the female. It is irrorated with white at the apex of the anterior wing, and on the outer border of the transverse band of the posterior wing, which is crossed towards the outer margin by a series of minute white spots.

Oatlands, Weybridge:
February, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

BY JOHN SCOTT.

Description of a species new to Britain.

Genus IDIOCERUS, Lewis.

Species Idiocerus Heydenii, Kirschb.

Idiocerus Heydenii, Kirschb., Cicad., 155, 6 (1868).

♀. Pale brownish-testaceous or somewhat rust coloured. *Crown* with two small black spots on the anterior margin, each nearer to the eyes than the centre. *Pronotum* with a pale, almost white, narrow, central, longitudinal streak, and an oval spot of the same colour on each side. *Scutellum* with a pitchy-brown triangular spot near each basal angle. *Elytra:* nerves at irregular intervals alternately brownish-testaceous or rust coloured and white. *Clavus* with a large whitish patch around the apex of the central nerve. *Corium:* nerves of the apical areas pitchy-brown, finely but distinctly punctured.

Head—crown very pale testaceous with a narrow, almost white central line, continued on to the frons; on the anterior margin adjoining each eye a more or less distinct, round, almost white space, margined by pale fuscous, and with a small black spot in the centre. *Face:* termination of the pale central line enclosed by a more or less distinct brownish patch; disc with a brown ♀-shaped character. *Antennæ* pale testaceous; *setæ* similarly coloured.

Thorax—pronotum pale brownish-testaceous or somewhat rust coloured, with a narrow, longitudinal, almost white central line, and a largish oval spot on each side, as also a few minute ones of the same colour; at the apex of the anterior margin of the oval spots, a more or less distinct minute black spot. *Scutellum* somewhat whitish, with a dark ^-shaped transverse channel, below which, on each side of the centre, is a pale brownish-testaceous longitudinal streak; basal angles with a pitchy-brown triangular spot; disc, above the transverse channel, with a more or less distinct, small, pale brownish-testaceous spot. *Elytra* pale brownish-testaceous or somewhat rust coloured; *clavus:* inner marginal nerve between the scutellar angle and the apex narrowly pitchy-brown, central third white; round the apex of the central nerve a somewhat large whitish patch; disc at the base next the claval suture whitish; *corium:* nerves alternately but irregularly pale brownish-testaceous or rust coloured and white; disc irregularly marked (more or less distinctly in different individuals) with whitish patches; anterior marginal nerve round the apex, and the longitudinal nerves of the apical areas, pitchy-brown, the latter finely but distinctly punctured; nerves of the ante-apical areas posteriorly, finely but distinctly punctured; appendix ample, pale fuscous. *Legs* somewhat rust coloured; *thighs:* 3rd pair with a narrow, black, longitudinal line along the upper and lower margins of the inside; *tibiæ:* 2nd and 3rd pairs down the inner margin with a black line, exteriorly at the base *brownish; tarsi:* 1st joint brown; apex of the 3rd and *claws* black.

Abdomen beneath deep testaceous with more or less of a rusty tinge.

Length, ♀, 2½ lines.

This species belongs to the section in which the males have the plate near the apex of the antennæ. It stands near *I. lituratus*, but has not the apparently interrupted and irregular transverse band below the apex of the clavus, as in that species, and the colour is totally different. When the insect is in repose, the white patch at the apex of the central nerve of the clavus, common to each elytron, is very distinct.

I have only seen two females taken by Mr. Douglas at Darenth Wood, in October, 1866.

This is one of the three species referred to by me at page 81, vol. x, of this Magazine, which I was at that time unable to determine.

37, Manor Park, Lee, S.E.:
February, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

BY JOHN SCOTT.

(continued from page 149.*)*

CICADULA, Zett.

This is a group of insects which I think the author originally brought together on account of the great external resemblance of many of the species. They are twenty-three in number, and divided by him into eight sections, which he defines, principally, by the number and form of the apical areas of the elytra, and the neuration of the wings. These are excellent characters, so far as they go. But, as the genitalia of the whole of the *Homoptera* have since been ascertained to differ much in structure, and play an important part in determining genera and separating species, it cannot be wondered at that *Cicadula* should cease to be retained as a genus.

Flor, in the Rhyn. Livl., vol. ii (1861), divides the species between two genera, viz., *Jassus* and *Typhlocyba*; but there certainly is not, so far as is known, a European representative of the genus *Jassus*, Fab. This arrangement cannot hold good any more than that of my friend the Rev. T. A. Marshall, who subsequently described the British species in the Ent. Mo. Mag.

Fieber, in the Verh. z.-b. 1866, p. 505, Wien, takes as his types of *Cicadula* two species, *C. quadripunctata*, Fall., and C. (Jass.) fenes-

trata, H.-Sch. These he afterwards abandons, and consigns to the genus *Thamnotettix*, Zett., and in his "Kat. der europäischen Cicadinen" (1872) adopts *C. cyanæ*, Boh., as his type. In the Catalogue he has referred the several species of Zetterstedt's genus to various genera which I partly adopt in the present instance. As I view matters, we at present possess four species, of which one is new, and whether it is the insect standing in Fieber's Catalogue under the name *C. frontalis*, I have no means of ascertaining, as the specimen I sent him for determination some years ago never was returned, nor is there even a sketch of it amongst those in the possession of M. L. Lethierry. I may add that it is very possible for Boheman's beautiful species, *C. cyanæ*, to be added to the list by some one who has the good fortune to live near where water-lilies grow, to which plants, he says, that species is attached.

In the table, which follows hereafter, I give sufficient characters to determine any of the species. *C. sexnotata* is, perhaps, the commonest of British *Homoptera*. *C. variata* comes next, but 7-*notata* has only, to my knowledge, been taken by the late Mr. T. J. Bold and the Rev. T. A. Marshall.

CICADULA, (Zett.) Scott, Fieb., p., *nec* J. Sahlberg.

Head—crown: anterior margin gently rounded, scarcely acuminate in the centre, length about equal to half the width between the eyes on the concave basal margin. *Eyes*, viewed from above, spherical triangular; outer margin projecting beyond the sides of the pronotum. *Ocelli* on the anterior margin, near each eye, and visible from above. *Face* convex, about as long as between the eyes measured on the frons. *Clypeus:* apex reaching to or very little beyond the lower margin. *Loræ* sub-oval. *Antennæ* placed in a small cavity at the lower corner of each eye.

Thorax—pronotum twice as broad as long; posterior margin straight or very faintly concave, rounded towards the shoulders; lateral margins convex. *Scutellum* triangular, apex acute. *Elytra* with four apical areas; the first transverse nerve dividing the ante-apical from the apical area at, or close to, the apex of the claval suture.

Abdomen: ♂, last genital segment above with a projecting tube of greater or less length; underneath, genital valve triangular, its base extending across the entire breadth of the abdomen; genital plates long, triangular, outer margin sometimes convex.

SECTION A.

Crown, with six black spots, the two on the anterior margin largest, and continued on to the frons, frequently the spots are united. *Face* with transverse black streaks. *Elytra* yellowish, with more or less distinct, fuscous, longitudinal *streaks between the nerves*..1. *sexnotata*, Fall.

Elytra greenish or pale greenish-white with deep brown or piceous streaks before and beyond the middle; apex of the clavus broadly brown or piceous.
2. *frontalis*, sp. n.

SECTION B.

Crown with four black spots, placed, two between the eyes and two on the anterior margin, continued on to the frons. *Face* without transverse black streaks. *Elytra* yellowish. *Clavus* with a large white patch, common to each elytron, margined with fuscous. *Corium* with a dark brown or fuscous spot about in a line with the apex of the clavus, and another of the same colour adjoining the apical areas...................................... .... 3. *variata*, Fall.

Elytra bright yellow, without markings. *Face* with a black spot at the apex.
4. 7-*notata*, Fall.

CICADULA FRONTALIS, *sp. n.*

Fieb., Kat. der Europ. Cicad. Wien (1872) ?

SECTION A.

Crown with six black spots.

♀. Greenish or pale greenish-white. *Crown* with two black spots on either side between the eyes (frequently united), and another in front (the largest), passing over the anterior margin on to the frons. *Face* with a short, fine, longitudinal, black line, and 4–5 transverse ones of the same colour; *pronotum* with a more or less distinct brownish or piceous patch on each side of the centre. *Scutellum* with a triangular black spot adjoining each basal angle. *Elytra* with several elongate and more or less united piceous streaks. *Legs* yellow; 3rd pair of thighs with a longitudinal black streak down the centre.

Head yellow or greenish-yellow. *Crown* with six black spots, the two in front the largest, and passing over the anterior margin on to the frons. *Face* with a short, fine, longitudinal black line, and four to five transverse lines of the same colour; side and apical margins very narrowly black; *loræ* narrowly margined with black. *Antennæ* pale brownish; *setæ* fuscous towards the apex.

Thorax—pronotum: pale yellowish or greenish-white; disc with a large, more or less distinct, brownish or piceous patch on each side of the centre; anterior margin with a short, transverse, sometimes interrupted, black streak extending from the inner margin of the eyes towards the middle; lateral margins generally with a small black spot towards the anterior angle. *Scutellum* yellow, with a triangular black spot adjoining each basal angle; transverse channel very narrowly black, its extremities terminating in a minute black spot. *Elytra* greenish or pale greenish-white. *Clavus:* inner marginal nerve from the base to beyond the scutellar angle black, then pale yellowish; apex black; disc, with three short brownish or piceous streaks running diagonally from the scutellar angle, these are sometimes united, but generally the nerves and a very narrow line next the claval suture are pale; apex broadly brown or piceous; claval suture very narrowly black. *Corium:* nerves pale; down the claval suture a brown or piceous streak, widest at the apex; anterior or costal area with a small brown or piceous patch in the middle, inner nerve at the base narrowly brown; discoidal and ante-apical area, in a line with each other, brown or piceous; central ante-apical area with a brown or piceous patch near the base, its lower margin frequently prolonged in the middle into a tooth; apex with a more or less defined brownish patch; apical area, in a line with the discoidal area, brown or piceous; appendix somewhat brownish. *Legs* yellow; *thighs:* 1st pair on the inside with a row of spots next the upper and lower margins; 2nd piceous, base and apex yellow; 3rd yellow, with a longitudinal black streak down the centre; *tibiæ* with a brownish shade; 1st pair: outer margin with a narrow, black, longitudinal line; 2nd with one, 3rd with two rows of black punctures set in pairs down the outer margin, between which are a few smaller ones; apex narrowly brown; spines brown; *tarsi* yellow; apex of all the joints narrowly, and *claws*, black.

Abdomen above, black; posterior margin of the segments and sides narrowly yellow, last segment more broadly margined than the others; beneath yellow, anterior and side margins of the segments black; last genital segment above, black, beneath and sides yellow; the spinose hairs brown. Length 1⅞ line.

When the insect is in repose, the following greenish or pale greenish-white characters are perceptible on the elytra:—*Clavus:* base broadly and a smaller space round the apex of the central nerve, common to each elytron; *corium:* base broadly; disc posteriorly with two narrow streaks, as also the anterior or costal area. Larger and stouter than *C. sexnotata*, and with the markings on the elytra more distinctly defined, somewhat as in *C. variata.*

All the specimens captured are females. They were taken by the Rev. T. A. Marshall in a swampy place near Lastingham, in September; no doubt some weeks too late for the other sex.

(To be continued).

NOTES ON BRITISH *HEMIPTERA*.

1. ORTHOSTIRA NIGRINA and MACROPHTHALMA.

I have a British *Orthostira* in my collection which agrees with the description of *macrophthalma*, given by Messrs. Douglas and Scott in your December number, p. 173, in having two rows of meshes on the sutural area of the elytra, but disagrees in having a pale 3rd joint to the antennæ. I have also before me two specimens of a species from Scotland, sent to me by Mr. Champion, agreeing with their notes on *nigrina*, but having black or very nearly black antennæ. Now, the arrangement and number of the meshes in my specimen with the pale antennæ is not the same on the two sides; on one the sutural area has two regular rows of meshes extending almost to the apex of the discoidal cell, on the other a third row is set up about the middle of the suture; this would suggest that the number and disposition of the meshes *may be a variable* character. The colour of the antennæ also might depend on the maturity of the specimens, and as there appears to be no difference in the comparative thickness of the antennæ in the specimens before me, I am inclined to think that the *nigrina* and *macrophthalma* of Messrs. Douglas and Scott may be varieties of the same species.

I see that Messrs. Douglas and Scott have corrected several errors in the synonymy, &c., of our *Hemiptera*, but I think the following corrections still want making.

2. GEOTOMUS PUNCTULATUS, Costa.

Æthus lævis, D. and S.

For this synonymy I have to thank Dr. Puton, to whom I sent specimens.

3. BERYTUS, n. sp.?

B. Signoreti, D. and S., *nec* Fieb.

Fieber places *Signoreti* in the division "membrane wide, nearly a half wider "than corium," which also includes *montivagus*. Now, in our species the membrane is not so wide as this, and is no wider than that of *cognatus*, which Fieber puts in the next division. The markings of the membrane on ours are also much less distinct than Fieber's description would suggest. This latter character, of course, may be variable. I have, however, two specimens from M. Meyer-Dür sent to me as *Signoreti*, Fieb., which agree exactly with Fieber's characters, and are quite distinct from our British form, being similar in shape to *montivagus*, with the same largely rounded membrane, but easily distinguishable from it by several characters. These, I believe, to represent the true *Signoreti*, Fieb., and if I am correct, our British species will require a new name.

4. NYSIUS BRUNNEUS, Fieb.

N. Scotti, E. Saund., E. M. M., vi, 1.

While correcting what I believe to be other people's mistakes, I am glad to have an opportunity of correcting one of my own. I am indebted to Dr. Puton for the above synonymy. I have also recently received a specimen of *Nysius helveticus* from M. Frey-Gessner, of Geneva, the characters of which appear identical with those of the present species, and unless I am mistaken, *N. obsoletus*, Fieb., must be a very nearly allied species, if distinct.

5. CAMPYLOSTIRA BRACHYCERA, Fieb.

C. verna, D. and S., *nec* Fall., *nec* Fieb.

Fieber describes and figures *verna* with only one row of meshes on each side of the thorax. Messrs. Douglas and Scott describe *verna* as having two rows of meshes in front and one behind, a character also of *brachycera*; from this I suspect that their *verna* is only the developed form of *brachycera*; whereas, *verna*, Fall., Fieb., is a distinct species.

6. PHYTOCORIS TILIÆ.

P. marmoratus, D. and S.

I must here declare my conviction that *marmoratus*, D. and S., is only a dark variety of *tiliæ*, although I think Mr. Scott still believes them to be distinct. I can perceive no structural difference whereby to distinguish them; nor can I see any difference in the position or arrangement of the markings. *Tiliæ* is a very variable species; and I have a series which I feel sure would prove to any one that *marmoatus* is only one of its extreme varieties.

7. Genus ?—OBSCURELLUS, Fall.
Atractotomus pini, D. and S.

I am indebted to Dr. Puton for this synonymy; he places the species in the genus *Agalliastes*, but I cannot think it belongs there, neither does it seem to me to agree with *Atractotomus*, although closely allied to it. I think it might well be considered as the representative of a new genus.

8. TINICEPHALUS OBSOLETUS, D. and S.

This species, following Fieber's views, must be removed from this genus, the only British exponent of which is *hortulanus*, Mey. The wing cell has no hook, the character of the division in which *Tinicephalus* occurs; how Fieber came to put it in this genus I know not, as it has to me neither the shape nor the look of a *Tinicephalus*. I should have called it a *Litosoma*, but if it is to enter that genus its name will have to be changed, as an *obsoletus* already exists therein.

9. PSALLUS ALNI, Fab.
P. dilutus, D. and S., ? Fieb.

I have had an opportunity, through the kindness of Mr. Douglas, of examining one of the type specimens of *dilutus*, D. and S., and so far as I can judge, it is simply a pale specimen of *alni*, Fab. Fieber's *dilutus* appears from his description to be a large species, in fact the largest of the genus,—long. 2⅓ lin.; whereas *dilutus*, D. and S., is only 1½ lin.—EDWARD SAUNDERS, 2, Spencer Park, Wandsworth.

OBSERVATIONS ON THE FOREGOING NOTES.

1. ORTHOSTIRA NIGRINA and O. MACROPHTHALMA.

The question involved is not yet removed from the domain of opinion, and it awaits the solution to be derived from facts.—J. W. D.

2. GEOTOMUS PUNCTULATUS.

I am not disposed to question the accuracy of the identification made by Dr. Puton.

In the Ent. Monats., viii, p. 233 (1864), Dr. Fieber referred his previously described *C. Helferi* to the older *C. punctulatus*, Costa, so that it is evident he knew the latter species; but when, in 1868, I sent him *Æthus lævis*, D. and S., he not only did not recognize it as *C. punctulatus*, but, comparing it with the latter and *C. nigritus*, pointed out differences which he considered made it distinct from both.

Mulsant and Rey, in the "Punaises de France," ii, 36, 1 (1866), not only followed Fieber with regard to *C. Helferi* being equivalent to *C. punctulatus*, but added to the synonyms, *C. bifoveolatus*, H.-S., and *C. aciculatus*, Fieber, and made the species the type of the new genus *Geotomus*. Mr. Saunders argued in the Ent. Mo. Mag., viii, 110 (1871), that our British insect was only a variety of *C. nigritus*, Fab.—J. W. D.

3. BERYTUS SIGNORETI, Fieb.

My examples agree with Fieber's description, including the breadth of the membrane referred to, and one of them was named by Fieber himself, so that there is no doubt of the correctness. Mr. Saunders's insects, not agreeing with the description, may possibly be the *B. pygmæus* (Fieb.), Lethierry, Cat. des Hémipt., 2nd ed. (1874), or one of the new species described by Reuter (Oef. Vet. Ak. Förh., *1870), or by Ferrari* (Hemiptera Agri Ligustici, 1874).—J. W. D.

5. CAMPYLOSTIRA VERNA, Fall.

I have put the unique British example under the microscope and find that the second row of meshes mentioned in the "British Hemiptera" as being on the front of the side margins of the pronotum is so stated in error, the said row of transparent meshes being really on the pronotum, adjacent to, but not on, the margins. Our species is the true *Tingis verna*, of Fallén. The question raised in the "British Hemiptera" as to it being the developed form of *C. brachycera* is still undetermined.—J. W. D.

6. PHYTOCORIS MARMORATUS, Doug. and Scott.

Surely Dr. Fieber, to whom this insect was sent with reference to its specific distinctness, must have also been possessed of specimens of *P. tiliæ* with which to compare it; and with his experience he would not certainly even have had a doubt about its difference. The insect must stand under the above name.—J. S.

7. ———— OBSCURELLUS, Fall.
Atractotomus pini, Doug. and Scott.

As long ago as May, 1868, in the Ent. M. M., iv, p. 268, our specific name for this insect was changed to *pityophilus*, Flor, as we had then received specimens of the last named from Flor proving the insects to be the same, and although we since became aware that further investigation had shewn this species to be identical with the *Phytocoris obscurellus*, Fall., we did not consider it necessary to make a further correction in this Magazine, as we are engaged upon the Catalogue of British *Hemiptera*, shortly to be published by the Entomological Society, in which this, as well as other corrections, will appear. The discovery that our insect was identical with *P. obscurellus*, Fall., was first pointed out by Reuter, in the Oefv. Vet. Ak. Förh., 1873, so that Dr. Puton merely followed him.—J. S.

8. TINICEPHALUS OBSOLETUS, Doug. and Scott.

We are content to let the insect stand where it is, as we believe the founder of the genus to be the most fit person to point out what he meant by it.—J. S.

9. PSALLUS ALNI, Fab.
Ps. dilutus, Doug. and Scott, ? Fieb.

We are willing to give credit to Mr. Saunders for his judgment, as far as it goes; but, because Fieber in his Eur. Hem. cites *P. dilutus* as the largest species in the group, and Mr. Saunders has examined the insect in question, and finds only a difference in shade of colour and size, we consider the matter to rest where it was. Besides, Fieber may have given the size of the insect at 2½ lines instead of 1½ line in error, or it may have been an overlooked error of the printer's.—J. S.

J. W. DOUGLAS and J. SCOTT, Lee: *February*, 1875.

Helophorus tuberculatus in Yorkshire.—I have much pleasure in recording the capture of this insect, in June last, in one of our Moor Bogs, where *Sphagnum* abounds. I identified the specimen from the description in the November number of this magazine, and Mr. Rye has compared it with one of the examples taken near Manchester.—T. WILKINSON, 1, Cliff Bridge Place, Scarborough: February, 1875.

Natural History of Syrichthus alveolus.—Last summer, at the end of May and beginning of June, I captured a score or more of these butterflies, and shut them up in a glass cylinder with bramble sprays; they would not, however, spare me more than seven or eight eggs, which were laid on June 2nd or 3rd. The larvæ began to hatch on June 12th, and by the 18th four had come out; the rest died in the egg, having begun, but not being able to complete, their liberation from the shell. Three also of the four larvæ, that had been safely hatched, soon died, but the survivor throve and grew; by July 9th, it was one-sixth of an inch long; by 17th, nearly half-an-inch long: about August 1st, it moulted for the last time, and soon attained its full length of about five-eighths of an inch, afterwards increasing only in stoutness; after the end of August it remained apparently dormant for days together, eating only at intervals; and about September 20th it became a pupa. Meanwhile, on July 29th, I had found another larva in the locality where I took the imago, which very nearly corresponded in growth with my bred example, but it unfortunately died without changing. Throughout, observation of their appearance was very difficult, owing to their habit of living in concealment, and, in fact, I believe the mortality which prevailed among my small stock was owing to disturbance caused by attempts at peeping, measuring, &c.

Probably, in freedom, the perfect insect has some constant method of depositing her eggs; but the few I had, having been laid in confinement, seemed to be placed on the upper or under sides of leaves, or on stems, indifferently: however, I think the newly-hatched larva (unless, perchance, as I have lately on reflection thought, it may prefer the blossom) chooses the upper surface of a small leaf for its habitat, and, settling itself along the midrib, at once spins several silken threads overhead for a covering, and feeds under that by eating away the outer cuticle; and when it has made a blotch of some little extent, it moves away, and repeats the process on another leaf: as it grows bigger, still choosing the upper surface of a leaf for its stand point, it forms its covering by drawing down another leaf over it, fastening the edges here and there with stout threads, and feeds away in the cave thus formed: when, however, it has attained some size, it think it must come out of its cave and eat the neighbouring leaves in the usual way, but I only once or twice saw either of my larvæ thus exposed of its own choice; the habit throughout the larval state is to be very sluggish, and a great part of the time must be passed by the larva in resting with its head curled round sideways towards its tail.

In the very limited time I could devote to searching for larvæ, I found numbers of deserted caves, and only one tenanted, and this seemed to prove that my examples in confinement acted pretty much as they would have, had they been at large; as mentioned above, I gave the butterflies bramble sprays to lay on, and I searched brambles for the larvæ, and came to the conclusion that stunted bushes with small leaves had the preference, the large juicy leaves of strong bushes apparently offering no temptation. I did not omit to look for the other plants on which the larva has been said to feed; in the same locality were some half-dozen plants of mallow (*Malva moschata*), but I am positive they bore no traces of larvæ; and there was not one plant of teazle. The wild strawberry, *Fragaria vesca*, has been suggested also as a likely plant, and I think it would probably occur wherever the butterfly is seen; but, as far as I feel justified in giving an opinion, I do not think there is any need to look for anything more than the bramble, *Rubus fruticosus*.

The egg is globular, with base rather flattened; the shell ribbed rather irregularly with about eighteen ribs, and transversely recticulated with very even fine lines, which do not stop at the ribs, but cross them, giving their edges a rough appearance which is not real, but only caused by the ribs, otherwise translucent, becoming opaque where the lines cross; as usual, a small space on the top of the egg is covered only with very fine concentric reticulation; the colour is a very pale green all over.

The young larva makes its escape by cutting a large round hole through the top of the egg; in colour it is very pale green, with head and collar shining black; every tubercular dot bears a pale bristle, longish and straight on the head and thirteenth segment, but on the other segments bifid, with the tips curved on either side like an unbarbed double fish-hook. When about one-sixth of an inch long, the colour is pale purplish-pink, the head still black; when nearly half-an-inch long it is pale green again, the whole skin now thickly set with short straight hairs; the bifid bristles having been parted with, I imagine, at the first moult. When full-grown, the length is rather over five-eighths of an inch, the figure very stout, the head horny, globular, and stuck like a knob on the second segment, which, however, is not so strikingly narrow as in *Thanaos Tages*; the skin granulated in appearance; the head and whole body covered thickly with short fine pale hairs; the general colour a pale ochreous-green, the second segment pinkish, and a faint reddish tinge over the back of the other front segments; a thin dorsal, and somewhat broader sub-dorsal line, not easy to be seen, of ground colour, and a faint spiracular line: the spiracles not much darker than the ground colour ringed with the same tint as the lines; the belly freckly; the head and collar very dark purplish-brown, the upper lip paler.

The pupa is enclosed in a cave between two or three leaves, similar to that in which the larva lives, but fastened with stouter silk, and the openings protected by a loose pale yellow webbing; its length is not quite half-an-inch, the figure thick and stumpy; the eyes prominent, the wing-cases well developed; the whole skin rather rough; the middle of the head, the eyes, and the back set with short stiff hairs: the ground colour reddish-grey, the wing-cases pinkish-grey; the abdomen tinged with brownish-red along the back; on the centre of the head, on the eyes, and on either side of the thorax above the wing-cases, are some blackish-brown marks; there are smaller marks in pairs down the middle of the thorax, and there are transverse rows of spots on the segments of the abdomen, the largest and darkest being next the wing-cases; the hairs are light brownish-red; the anterior spiracle black, the others of the grey ground colour, ringed with black, and placed within the largest dark blotches. —John Hellins, Exeter: *February* 11*th*, 1875.

Occurrence of Myelois cirrigerella, Zk., a species new to Britain.—Specimens of this interesting little addition to our list of *Phycidæ* were submitted to Mr. Barrett, who kindly forwarded them to Prof. Zeller for determination; and he has now returned them with the above name. They were taken June 30th, 1874, at light in the neighbourhood of Marlborough, Wilts; some eight or nine specimens came in the course of the evening, but I only secured four in a condition worth setting, as they manifested a most pernicious affection for the flame of my candles; the remainder succeeding in self-immolation. I did not meet with more on subsequent evenings, which I attribute principally to somewhat unfavourable weather. Some of the specimens were quite fresh, others considerably worn. I suspect that June 20th will be about the time to look for it in general, and that it is out only for a short time. It flew between 11 and 12 p.m. I add a brief description, which, I trust, will enable others who may meet with it to recognise it.

Exp. al., 9 lines. Palpi moderate, porrected. Head and thorax bright yellow. Fore-wings glossy, rather pale brownish-ochreous, yellower towards base, immaculate. Hind-wings grey. Cannot be confounded with any other British species. When alive it has a very smooth and glossy appearance, and the yellow thorax is conspicuous.

Nothing appears to be known abroad of its earlier stages, but I think it possible that the larva may feed in decayed wood.*— E. MEYRICK, Trinity College, Cambridge: *February 2nd*, 1875.

Notes on some Tineina observed in 1874.—The spring commenced early, and included some very warm weather, the effects of which were noticeable during the summer in the accelerated development of several species.

Laverna epilobiella, Römer: I met with a few larvæ of this on the 22nd of June, then nearly full-fed, and expected they would have formed their cocoons simply "among the leaves of their food-plant," as is recorded; but each larva mined out a small space in a fresh leaf, and constructed its cocoon within it, nearly filling up the space.

Tischeria dodonæa: I was led to the discovery of the larva of this insect here in a rather singular way:—Having found a few larvæ of a saw-fly (*Blennocampa*) in August, on oak, I took home a few twigs of the plant to feed them on, and in a few days after I noticed on a leaf of one of the twigs a minute reddish-brown spot which grew daily somewhat larger, and when it had attained a diameter of one-fifth of an inch the darker concentric rings characteristic of this species were distinctly traceable under a lens. I visited the place where it was found in the beginning of October, when I collected about twenty larvæ. At the same time and place occurred the four British species of *Tischeria.*

Tischeria angusticollella: found several nearly full-fed larvæ of this on the 10th of August, but secured only a few, not thinking, until after arrival home, that possibly some of them might attain the imago state before next spring, which, however, some of them did, as I bred three before the end of the month; and, on visiting the place where they occurred on the 22nd of the same month, I saw one leaf containing a mine of this insect, with the empty pupa-skin projecting from it. No larvæ of this species were observable in September, but in October many were found, all quite young at the middle of the month, none being full-fed before the 21st.

Lithocolletis viminiella: bred this from willow as well as sallow.

Cemiostoma Wailesella: collected numerous larvæ of this on the 10th of August, expecting to breed the moths next spring, but some of them were not inclined to wait so long, for twenty-nine appeared between the 21st and the end of August, and others in September. They were kept under gauze at an open northward window. I noticed a pair *in copulâ.*—J. E. FLETCHER, 9, Pitmaston Road, Worcester: *January 27th*, 1875.

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* We think this habit scarcely probable.—EDS.

Helicopsyche-cases from Sikkim.—Lord Walsingham has just submitted to me for examination three cases of *Helicopsyche* from Sikkim, which he found (labelled '*Valvata*') in a collection of shells belonging to Mr. J. Ponsonby. This, I think, is a new locality for cases of this nature. They are small, the largest 4 mm. in diameter across the lower end, the smallest 3½ mm.; formed of very coarse grains of sand, with a considerable admixture of quartz. All are closed by an operculum, shewing concentric structure. For reasons already referred to by me in the Journal Linn. Soc., Zoology, vol. x, p. 201, I refrain from giving a name to this form.—R. McLachlan, Lewisham: *February 2nd*, 1875.

A probable heliciform case-making larva among the Curculionidæ.—Some time ago, Mr. H. W. Bates gave me some heliciform cases sent to him in a collection of *Coleoptera* from Mombas, East Africa, by the Rev. T. Wakefield. Mr. Bates thought they might be *Helicopsyche* cases: but, as they were made of tough silk, with some vegetable substance interwoven into it, and had an opening at the smaller end, I concluded at first they were Lepidopterous, and allied to *Psyche helix*, the cases of which they much resembled, though much larger. I cut all open. One was empty; another contained the remains of a larva which did not appear Lepidopterous; a third, to my astonishment, held the *débris* of a beetle of the family *Curculionidæ*, and apparently allied to *Otiorhynchus*. No notes concerning them accompanied the consignment, but as all other insects in it were beetles, it is just possible that Mr. Wakefield was duly aware of the nature of the cases as belonging to the *Coleoptera*; and I think it best to record the facts as they presented themselves to me, in order that the matter may not be lost sight of.—Id.

Entomological Society of London: *25th January*, 1875.—Sir S. S. Saunders, C.M.G., President, in the Chair.—Anniversary Meeting.

After the reading of the Treasurer's Accounts and Report of Council for 1874, the Society proceeded to the election of Council and Officers for 1875. Messrs. A. G. Butler, G. C. Champion, F. P. Pascoe, and the Rev. R. P. Murray were elected in the place of outgoing Members of the Council. Sir S. S. Saunders was re-elected President, Mr. McLachlan Treasurer, Messrs. F. Grut and A. G. Butler Secretaries, and Mr. Janson Librarian.

The President read an Address, which was ordered to be printed, and the Meeting terminated.

1st February, 1875.—The President in the Chair.

C. Livingstone, Esq., of Tudor Road, Snaresbrook, was elected an ordinary Member; and M. A. Sallé, of Paris, a Foreign Member.

Mr. S. Stevens exhibited a curious variety of *Noctua glareosa*, in which the ordinary dark markings between the stigmata in the anterior-wings were almost obliterated.

Mr. Champion exhibited *Amara continua*, a species recently detected as British (see Ent. Mo. Mag., No. 129, p. 207).

Mr. H. Druce exhibited selections from a collection of *Rhopalocera* recently received from Santarem.

Sir S. S. Saunders exhibited a nest of *Polistes gallica* from Corfu, partly manufactured from play-bills posted near where it was found, and shewing the various colours of the paper used by different 'strata' in the cell walls. In connection with this exhibition, and with Sir John Lubbock's recent remarks (at the Linnean Society) on the power ascribed to bees and other social *Hymenoptera* of communicating facts as to stores of food, &c., he mentioned that he had placed this nest (containing larvæ), with one imago, outside a window, but within Venetian blinds, covering it with a tumbler, which was removed in the morning, when the *Polistes* sallied out, and in due time brought with her two companions to assist in feeding the larvæ. Strangers intentionally added from other nests were attacked and driven away.

Mr. F. Smith stated that he had introduced *Colletes cunicularis* (a bee taken a few years ago in the Isle of Wight, and subsequently near Liverpool) into suitable localities at Shirley, in April, 1872; and in 1874 Mr. H. D'A. Power took an individual there (which was exhibited) proving that the attempt at colonization had been so far successful.

Mr. Butler read 'Contributions to the *Rhopalocera* of Australia."

Mr. W. A. Lewis read a paper on 'Entomological Nomenclature.'

The President nominated Messrs. J. W. Dunning, F. P. Pascoe, and J. Jenner Weir as Vice-Presidents for the year.

15*th February.*—The President in the Chair.

F. H. Ward, Esq., of Springfield, near Tooting, was elected a Member.

Mr. Phipson exhibited a singular variety of *Strenia clathrata* from Basingstoke, the wings being nearly unicolorous (fuscous), with a few pale spots.

Mr. F. Smith exhibited a further collection of *Hymenoptera* from Calcutta, sent by Mr. Rothney. It consisted of 1573 individuals in beautiful condition, but with probably not more than twenty-five undescribed species.

Mr. Verrall exhibited a number of living fleas, taken two days previously from the ears of a rabbit near Lewes; they were gregarious in this situation, which condition he thought might be owing to the animal being unable to remove them by scratching, owing to the pendant nature of the ears. In connection with this subject, he alluded to a communication made to him by Mr. McLachlan, regarding a species of *Pulicidæ* from Ceylon, living gregariously, and closely packed (affixed by their probosces) on a small portion of the skin of the neck of a fowl, as exhibited at a recent meeting of the Microscopical Society, and in the possession of Mr. Curteis, of 244, High Holborn. He had once found a number of fleas just before the tail on a dog's back, thus, also, in a position from which the animal could not dislodge them.

Mr. Cole said he had found fleas in a hedgehog; and Mr. W. A. Lewis had observed them on a marmot in Switzerland.

Mr. Dunning called attention to a recent extract from a French paper, in which it was stated that a paint could be manufactured from cockchafers.

The Rev. R. P. Murray stated that Mr. Edwards, the author of the magnificent illustrated work on 'North American Butterflies,' was desirous of obtaining pupæ of *Pieris napi*.

NOTES ON *ODONATA* FROM NEWFOUNDLAND, COLLECTED IN 1874 BY MR. JOHN MILNE.

BY THE BARON E. DE SELYS-LONGCHAMPS.

LIBELLULINA.

Leucorrhinia hudsonica, Selys (Rev. des Odonates, p. 53), 1 ♂ from White Bay, similar to my type.

CORDULIINA.

Cordulia Shurtleffi, Scudder (Selys, Syn. Cord., p. 31), 1 ♀.

Epitheca cingulata, Selys (Syn. Cord., p. 68, ♀), 2 ♂, 3 ♀, from White Bay and Bonavista Bay. The following is a description of the ♂, which sex was previously unknown to me:—

Length of abdomen, 40 mm.; of posterior wing, 37 mm.

Wings scarcely tinted; the anal border of the posterior slightly ochraceous in the anal triangle next the membranule, this latter black, white at the base; neuration black (the costa slightly brown exteriorly up to the nodus); pterostigma brown, placed between two thickened black nervules (4 mm. long); discoidal triangles with transverse nervules in all the wings (or aberrantly free in one), followed by two to three cellules, and afterwards by two rows of post-trigonal cellules; 8—9 ante-cubital nervules, 6—7 post-cubital, in the anterior wings. Head and thorax bright bronzy-brown; lower lip yellow, the upper shining blackish; rhinarium yellowish; occiput, vertex and front bronzy-blackish, the latter yellowish at the sides. Front of the thorax somewhat coppery-green (*without pale bands*). Abdomen bronzy-blackish, the sides of segments 1—3 pale brown; terminal suture of segments 2—9 *forming a yellowish circle.* Legs black; the anterior and intermediate femora reddish-brown; the posterior femora *not swollen.* Anal appendages black. The superior equalling the 9th and 10th segments (4 mm. long), distant and acuminate at the base, almost straight and cylindrical *in their first third*, abruptly elbowed and turned downward, one against the other, at a slightly obtuse angle in their last third, the slender points *crossed and curved upward;* they are pubescent, and have, at their base exteriorly, *a small acute tooth*, and the elbow is thickened exteriorly, forming a tubercle (*but not a tooth*). Inferior appendage one-third shorter; viewed laterally slightly curved upward; the apex nearly as broad as the base, truncate, and even forked, in consequence of the two external angles being slightly prolonged and curved upward.

N.B.—The form of the appendages proves that this species is allied to *tenebrosa.* It is separated from it especially by the yellow circle at the abdominal sutures, by the very long pterostigma, the absence of pale bands on the sides of the thorax, the femora not swollen, and, finally, by the inferior appendages being furcate at the apex. It much resembles *albicincta*, but in the latter the inferior appendage of the ♂ is *triangular*, and the vulvar scale of the ♀ strongly bilobate.

Epitheca forcipata, Scudder (Selys, Syn. Cord., p. 61), 1 ♀, from

White Bay. The coloration is very similar to that of the ♀ of *elongata*. It is of the same variety noticed from Fort Resolution, and differs from the European *arctica* by the two conspicuous oval yellow bands on the sides of the thorax.

ÆSCHNINA.

Æschna hudsonica, n. sp., 1 ♂, 4 ♀, from White Bay (also Canada).

Length of abdomen, ♂, 59 mm., ♀, 55; length of inferior wing, ♂, 49 mm., ♀, 50.

♂. Very similar to *juncea* in size, coloration, the two yellow bands on the front of the thorax, and the two broad bands on the sides, as well as in the three little tubercles on the 10th segment, *but the pterostigma is slightly shorter and blackish*.

♀. Separated from *juncea* by the *shorter* pterostigma (3½ mm. in length; 4½ in *juncea* of the same size).

Æschna clepsydra, Say. (?), 2 ♀, one indicated as from Castor River. Similar to the ♀ of my collection (received from Dr. Asa Fitch), but my ♂ from Canada does not correspond with Hagen's description. The ♀ differs from *hudsonica* by the face having a transverse *pale red* line between the front and the nasus (this line is *black* in *hudsonica* and *juncea*). Separated from *borealis* by the eyes being less longly contiguous.

GOMPHINA.

Gomphus ——?, 1 ♂, from Terra Nova River, only just emerged.* I cannot determine the species, because the appendages are not in a condition for examination. However, from the size and coloration it appears to be allied to *G. parvulus*, Selys (of Nova Scotia). It is important to note the excessively short and numerous spines of the posterior femora, which are very useful as a clue to the inferior groups of the genus *Gomphus*. The appendages of this individual (in the state they are now in) have some analogy with those of *Ophiogomphus*.

AGRIONINA.

Ænallagma boreale, n. sp., 1 ♂, 1 ♀, the former from White Bay.

Length of abdomen, ♂, 21½ mm., ♀, 24; inferior wing, ♂, 18 mm., ♀, 19.

Stature and coloration of *cyathigerum*, but differs as follows:—♂ (1) The blue post-ocular spots rather broader. (2) The black superior "comma" (*virgule*) of the second lateral suture of the thorax prolonged into a line on the suture up to the base of the posterior legs. (3) The sides of the 1st segment of the abdomen with a fine, *oblique*, curved black mark, parting superiorly beyond the base and touching the end of the segment posteriorly. Under-side of the 2nd segment *black*, this colour

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* Mr. Milne was present at its birth. I possess the puparium.—R. McL.

dilated and forming two angles near the genital organs. The posterior dorsal spot T-shaped, with the upper line of the T broadly lunate, and the tail thickened. The upper-side of segments 3—6 with a black posterior spot analogous to those of *cyathigerum*, but broader laterally, in form of terminal rings touching the ventral suture, which is broadly black; these spots include (against the posterior articulation) a blue mark, and are somewhat notched near the ventral suture on the 5th and 6th segments, whereas, on the 3rd and 4th they are prolonged into a fine line towards the base along the ventral side. (4) Anal appendages analogous; but the superior (half as long as the 10th segment) thicker when viewed from above, because the point which exists in *cyathigerum* before the apex is here transformed into a little plate, almost square, inclined downward, one directed against the other, almost as in *ebrium*, but smaller; viewed laterally these appendages are thick, as long as the 10th segment, yellow, black at the point, slightly thicker and more erect than in *cyathigerum*.

♀. The ground colour is pale reddish, the spine of the 8th segment long. It differs from *cyathigerum* as follows:—(1, 2, 3, see the description of the ♂); (4) The second segment has no black band, but a simple dorsal posterior spot, almost as in the ♂, lanceolate anteriorly; the bronzy spots less extended above on the 3rd to 6th segments, not commencing till after the 1st quarter, where they are pointed, and then suddenly dilated in the last third (as in the ♂).

N.B.—The two sexes differ from all the allied species by the oblique black line on the sides of the 1st segment, thus resembling *Agrion concinnum*. (This line is found in *Æ. robustum*, n. sp., from California, of which I know only the ♀, but this is allied to *durum*, having four ante-nodal cellules, and not three as in all the other species). The ♂ is also unique in the sub-genus by the black ventral band of the second segment, and the ♀ by that segment having only a simple hastate dorsal spot, and by the eighth segment being pale red. By the internal plate-like internal dilatation of the superior appendages it approaches *ebrium*, but in this latter the inferior appendages are equal to the superior, and the coloration of the abdomen is quite different.

Liége: *February*, 1875.

[Note.—The materials from which this paper has been drawn up were collected in various parts of Newfoundland by my young friend Mr. John Milne, F.G.S., who has spent two summers and autumns in Newfoundland. Before starting on his last expedition I urged him to collect any insects he might find, believing that less is known of the entomology of Newfoundland than of any other British colony. He brought an extensive miscellaneous assemblage in all orders, but principally *Lepidoptera*. The few individuals in other groups of *Neuroptera* are scarcely worth noticing at present; but there was a very fine ♂ specimen of *Neuronia postica*, Hag.—R. McLachlan.]

ON A COLLECTION OF BUTTERFLIES MADE BY MR. JOHN MILNE IN NEWFOUNDLAND.

BY H. W. BATES, F.L.S.

Mr. John Milne, during his above mentioned journey round Newfoundland last year, collected sixteen species of Diurnal *Lepidoptera*. No notice of the productions, in this department, of this part of North America having, as far as I am aware, been published, I have undertaken at his request to name the species, and draw up the present list of them. It will be seen that the butterfly-fauna of Newfoundland offers some peculiarities (as compared with that of the United States), and further additions will be looked for with great interest. That many more inhabit the island cannot be doubted, inasmuch as the present collection contains no *Colias* or *Hesperiidæ*, and furnishes much fewer species than the more northerly region of Labrador, concerning which an excellent paper was published by Moeschler in the Wiener Entomologische Monatschrift.

Papilio Turnus, Lin. Both sexes, agreeing closely in size, colours, and markings with specimens from Nova Scotia and West Canada, but differing much from others found in Southern Atlantic States, being smaller and paler, and having much narrower black borders to the hind-wings.

Found in the latter half of July at Bonavista Bay and in other localities, about long grass on the borders of rivers.

Papilio brevicauda, Saunders, in Packard's Guide, p. 278. Many examples, nearly all females, from Betts Cove and Terra Nova River.

Although this is evidently only a local form of *P. Asterius*, it differs so much in form, as well as in markings, that it well deserves a distinctive name. The single male brought home by Mr. Milne is too much shattered for comparison, but the ♀ shows a strongly rounded outer border to the fore-wing, and the caudal lobe of the hind-wing is not more than half the length of the same part in the ordinary *Asterius* of the Atlantic States.

Pieris oleracea, Harris; var. *frigida*, Scudder, Proc. Bost. Journ. Nat. Hist. (1861), p. 181. The common species of *Pieris* of Newfoundland. Mr. Milne's numerous specimens are from St. Heliers, Bonavista, St. John's, and other localities. As a rule, they are more strongly marked with black than the *oleracea* of the States, not only along the veins, both above and beneath, but at the bases of the wings and apex of fore-wing. Some females are scarcely distinguishable from the dark-veined variety *bryoniæ* of the European *P. napi*, and have the dusky sub-discal spots of that species; in no male, however, have I remarked the sub-discal spot.

One specimen of this butterfly was taken at the small isolated islet called Funk Island, to the east of Newfoundland.

Argynnis Freja, Thunberg. Two examples. Compared with specimens from Lapland, the Newfoundland form is decidedly of a brighter (*i. e.* more orange) colour on the upper surface, and the black submarginal circumflexes are detached from the marginal spots, this latter feature probably arising from the smaller dimensions generally of the black markings. Beneath, all the characteristic markings are the same as in the Lapland *Freja;* but the general colour of the hind-wing is ruddier, and the central black flexuous band is less black; the marginal buff triangles in shape are rather linear than triangular. All these differences are so many points of resemblance to *A. polaris;* but on comparing the Newfoundland *Freja* with a specimen of *polaris* from Labrador, I find that the two differ far more than they agree. The distinctive characters are well pointed out by Moeschler in his paper on the Lepidopterous Fauna of Labrador (Wiener Entom. Monatschrift, 1860, p. 339).

Argynnis Chariclea, Schneid., Hübn. One specimen, Betts Cove. Agrees well with Lapland specimens.

Argynnis Atlantis, W. H. Edwards, Proc. Ac. Nat. Sci. Phil., 1862. Many specimens, agreeing with others from the Catskill Mountains, New York, sent to me by Mr. Edwards.

Vanessa (Grapta) comma, Harris. One example, agreeing with specimens from New York, sent me, under this name, by Mr. W. H. Edwards.

Vanessa Antiopa, L. Sandy Point, George's Harbour, 1st October. Dark and much irrorated wing-borders.

Vanessa Milberti, Godt. Apparently a common insect.

Pyrameis cardui, L. Many examples.

Chionobas Taygete, Hübn. "Rantem; flying among long grass." Agrees pretty well with Lapland specimens.

Cœnonympha inornata, W. H. Edwards, Proc. Ac. Nat. Sci. Phil., 1861, p. 163. One example, ♂, agreeing well with the description above cited. Mr. Edwards' original specimens were from Lake Winnipeg.

Lycæna Scudderi, W. H. Edwards, Proc. Ac. Nat. Sci. Phil., 1861, p. 164. One ♂, "Rantem." Mr. Edwards described the species from Lake Winnipeg.

Lycæna Couperi, Grote, Bull. Buffalo Soc. Nat. Sci., i, p. 185 (1873); *Glaucopsyche Couperi*, Scudder, ibid., Decem. 26, 1873. Described from specimens taken at Anticosti by Mr. Couper. Mr. Milne's collection contains numerous examples captured among bushes on the north-west arm of Bonavista Bay. They agree very well with Mr. Scudder's description.

Lycæna Aquilo, Boisd., Icones, pl. 12, figs. 7 and 8. One specimen only, taken at Rantem.

Lycæna Lucia, Kirby, Fauna Bor.-Amer., iv, p. 299, pl. 3, figs. 8 and 9. Numerous examples of this widely distributed boreal American species, taken near Spruce Trees, at Rantem.

Bartholomew Road, Kentish Town, N.W.:
March 1875.

DESCRIPTION OF A NEW PULICIDEOUS INSECT FROM CEYLON.

BY PROF. J. O. WESTWOOD, M.A., F.L.S., &c.

I have lately received from H. N Moseley, Esq., one of the naturalists of the exploring ship "Challenger," and also from my correspondent, Mr. Green of Colombo, Ceylon, numerous specimens of a minute species of flea, which attacks the domestic fowl in Ceylon, attaching itself firmly by its rostrum, in considerable numbers, around the eyes and neck of the birds, thus differing from the ordinary flea, which never fixes itself in such a manner as not to be able to disengage itself instantaneously; and also from the Chigoe, which burrows into the flesh of its victim, human or quadruped.

This new species is about two-thirds of the size of the common human flea, and is of a more rounded form, the back being much more arched; its body is much less strongly spined; the head is slightly angulated in front of the antennal cavities. The proboscis is ordinarily porrected, that is to say, the delicate lancet (which seems to me to represent the labrum, and which has six or seven minute serratures on its upper edge, but which was considered by Mr. Haliday to represent the lingua) and the two elongated mandibles forming the sheath of the former piece (and each of which has four rows, each with fifty-four minute denticulations) are generally stretched out in the same line as the body; the triangular maxillæ and the four-jointed maxillary palpi are deflexed, and the lower lip consists of an oblong and very delicate membrane with two flat equally delicate inarticulated plates at its extremity. This latter character separates the species from all the genuine fleas of the genus *Pulex*, and agrees with that of the Chigoe, forming the genus *Sarcopsyllus*, established by myself many years ago in the Transactions of the Entomological Society of London, but for which Herr Karsten has improperly taken up the old and most inappropriate generic name of *Rhynchoprion*. Hence I propose for this new Ceylonese flea the name *Sarcopsyllus gallinaceus*.

Oxford: *March*, 1875.

ON THREE NEW SPECIES OF *HYDROPHILIDÆ*.

BY D. SHARP, M.B.

Dr. Leconte, in the Trans. Am. Ent. Soc., 1874, p. 47, has published the characters of an aberrant new genus and species of *Hydrophilidæ*, found in Texas by Belfrage, and has named the insect *Sepidulum costatum*. When I was last in London, Mr. E. W. Janson presented me, in the presence of Dr. Horn, with a peculiar small coleopterous insect he had destined for me, and on looking at the specimen I recognized it as allied to a remarkable species in my collection from South America, resembling, at first sight, a small *Trox*, or a Heteromerous Coleopteron, but which, after examination, I had referred to the *Hydrophilidæ*; and, on its being handed to Dr. Horn for inspection, he declared it to be allied to a remarkable insect that had much interested Dr. Leconte and himself, and which the latter was just describing under the name of *Sepidulum costatum*. Dr. Leconte, knowing the interest I felt in his new genus, has been so kind as to send me a couple of individuals, and, on examining them, I find that both my species are really closely allied to the Texas species, so that I feel justified in describing them under the same generic name, although it must be admitted that some of the slighter characters given by Dr. Leconte as characterising the genus, must in such case be eliminated from the generic formula, and considered as specially characteristic of the Texas *species*. The genus *Sepidulum* appears to me to possess a greater affinity with *Spercheus* than with any other described genus; the most important points in which it differs therefrom appearing to be: 1st, the structure of the antennæ; 2nd, the structure of the abdomen; and 3rd, the fact that *Sepidulum* is characterized by Leconte as possessing but four joints to the tarsi, while *Spercheus* has five. The basal joint of the tarsi in *Spercheus* is, however, very short, and, on making a careful examination, even without dissection, of *Sepidulum trogoides* and *S. bullatum*, I am able to perceive that there is a fifth joint present in the shape of a minute basal joint concealed by the extremity of the tibia. As regards the structure of the abdomen, I may also state that I have no doubt this will prove also not be important; *Spercheus emarginatus* has the abdomen formed of five well developed, finely pubescent, ventral segments; while of *Sepidulum* Leconte says, "the abdomen is deeply withdrawn in the cavity of the "elytra; it is flat, and I can see but four ventral segments, the last is "rounded at tip and vaguely impressed each side; there may however "be five segments, the first being invisible on account of the promi-"nence of the metasternum and the contraction of the abdomen."

After examining, as well as I can without the aid of dissection, the larger species of *Sepidulum* here described, I feel little hesitation in stating my opinion that the abdomen in *Sepidulum* will be found to be composed of six horny ventral plates, and similar in structure and functional value to the abdomen of *Amphiops*, viz., a basal segment placed in a vertical direction immediately behind the coxæ, so as to be quite invisible except on dissection, a second segment reduced in size to an extremely narrow band, which is placed at right angles to the basal segment, and four large apical glabrous segments; whereas in *Spercheus emarginatus* the five apical segments are each about equally developed and are pubescent, the basal segment being glabrous and similar in form and position to that of *Sepidulum*. The difference then in structure of the abdomen in *Spercheus emarginatus* and *Sepidulum* will, I believe, be found to consist in the great reduction in size of the 2nd horny segment in *Sepidulum*, and in the apical segments being glabrous and therefore unfitted for detaining air for respiratory purposes. Precisely in these points the *Spercheus* from Australia here described stands intermediate; in it the four apical segments are large and glabrous, while the segment immediately behind the coxæ is pubescent, but its surface is about half cut away on each side in adaptation to the coxæ.

The characters furnished by the legs and abdomen seem to me therefore to indicate rather the affinity of *Sepidulum* with *Spercheus* than the contrary. On the other hand, the antennæ remain very different in the two genera, the structure in *Sepidulum* shewing no approach to the peculiar structure of these organs in *Spercheus*.

It is important to recall that *Spercheus* carries its eggs in a sac about with it, the sac being placed on the under surface of the hind-body; the structure of the abdomen, and the ample elytra (when the sac is attached and retained in position by the coxæ and femora), allowing it to find complete protection. *Sepidulum costatum* also carries and protects its eggs in a similar manner: not only does the structure of the abdomen indicate this, but I have direct evidence of the fact, inasmuch as one of the two specimens sent me by Dr. Leconte had, when it reached me, its egg sac still attached and containing a few ova.

The modifications of structure of the ventral segments in the group *Hydrophilidæ* are of singular interest to the student, being controlled as they are by three, if not more, important functional relations; viz.: relations to respiratory needs of aquatic life; 2nd, protection of eggs by their being carried about by the female; and

3rd, adaptations to modifications of hind coxæ for aquatic locomotion: the comprehension of these modifications and their functional values will facilitate the classification of the members of the group.

SEPIDULUM TROGOIDES, *n. sp.*

Ashy-red, antennæ and palpi yellow, thorax produced in the middle over the head, the sides indentate in an irregular manner so as to be ragged; elytra with suture and margin elevated, and each also with three costæ, the middle one interrupted near the base.

Length, 3 mm.

Head granulate above, the eyes completely divided by the canthus. Thorax forming a broad lobe in the middle over the head; on this lobe are two elevated lines, contiguous near the front, then diverging till behind the middle, when they become abruptly approximate, outside these lines is another irregular elevated one on each side; its upper surface is made rough by elevated granules; the sides are ragged and indented, but narrowed behind, so that the base is much narrower than the front. The elytra have, between the raised lines, coarse punctures, arranged in rather irregular rows, two rows between each of the middle costæ, and four between the outer one and the external margin. Metasternum granulated, with a slight depression in the middle at the extremity. Legs rather stout, rough; tarsi and claws moderately large.

South America, or possibly Mexico.

This insect is rather closely allied to *S. costatum*, Lec., from Texas; besides the differences in the sides of the thorax and the sculpture of the elytra, the only important structural characters I notice to distinguish it therefrom are the completely divided eyes, and the considerably larger tarsi and claws.

SEPIDULUM BULLATUM, *n. sp.*

Blackish, posteriorly reddish, on the upper surface with elevated metallic tubercles; legs stout, reddish, antennæ and palpi yellow.

Length, 3⅔ mm.

Head with raised granules, the clypeus in front metallic; eyes large, incompletely divided by the canthus. Thorax much narrower than the elytra, a good deal narrowed towards the base, the front produced in the middle over the head as a broad lobe, in the middle of this near the front is a small elevated space, giving the appearance of another lobe; the sides are finely serrate, the surface is covered with granules, and has besides some large elevated pustules, some of which are metallic at their summit. Elytra roughened with sharp well-defined granules, and furnished with four rows of larger bullæ or tubercles, which are metallic at their summit, the outer row sub-obsolete. Metasternum very short, with a raised, transverse, polished space, occupying its middle. Legs reddish, stout; the tibiæ rough, with longitudinal lines; the hind femora angulate beneath in the middle.

India. A single specimen, for which I am indebted to Mr. E. W. Janson.

Besides the distinctions in sculpture, this species differs from *S. costatum*, Lec., by the much stouter legs.

SPERCHEUS PRISCUS, *n. sp.*

Brownish-yellow, with the margins of the upper surface paler; thorax very short and transverse, with the sides serrate; elytra coarsely punctured, and with some not very distinct elevated costæ, the sutural costa short, and strongly elevated; the margins explanate.

Length, 4 mm. Breadth, 2½ mm.

Much narrower than the European *S. emarginatus;* like it, covered with a crust concealing its sculpture. Head with the sides of the clypeus much raised, depressed and emarginate in front, its surface uneven, the front part but little punctured, the hinder roughly but indistinctly punctured. Thorax narrower than the elytra, very short, the front angles prominent, the sides serrate, the middle part like the head brown in colour, the sides yellowish, the sculpture of the centre rough but indistinct, the sides nearly smooth. Scutellum elongate, smooth, and shining. Elytra very convex, yellowish, irregularly maculated with brown, with four costæ; the internal one strongly elevated at the base, in the middle almost absent, then again a good deal elevated at the extremity; the 2nd and 4th costæ reach quite to the extremity, the 1st and 3rd do not; the interstices are very coarsely punctured. The four apical segments of the abdomen are glabrous and shining, the basal one, as well as the sternum, dull and pubescent. Tibiæ rather strongly serrate externally; basal joint of tarsi very indistinct.

Rockhampton, Queensland.

Thornhill, Dumfries:
February 23rd, 1875.

NOTES ON BRITISH *TENTHREDINIDÆ*, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY P. CAMERON, JUN.

STRONGYLOGASTER FEMORALIS, *sp. n.*

S. niger, nitidus, pronoti limbo, tegulisque albidis, abdomine cingulo lato rufo; pedibus testaceis, femoribus fere totis nigris; alis hyalinis, stigmate nigricante. ♂ ♀. *Long.* 3¼ *lin.*

♀. Antennæ filiform, black, shorter than the thorax and abdomen. Head shining, totally black. Thorax black, shining, glabrous; pronotum broadly edged with sordid white; tegulæ white; cenchri small, obscure white. Abdomen black, less shining than the thorax; the segments not smooth as in *S. mixtus*, but in furrows; the four middle segments red, beneath they are also red, but the sides are edged with black; the apex is acuminate, the cerci moderately long. Wings hyaline, the nervures, costa and stigma black. The marginal nervure is placed at some distance in front of the 3rd sub-marginal one. The feet are sordid testaceous; the femora black, except at the apices and at the bases of the posterior pair; the knees have a yellowish hue; the posterior tibiæ are darker than the four anterior; the posterior tarsi fuscous.

The above description serves equally well for the ♂, *mutatis mutandis*. The antennæ are not longer than the body.

S. femoralis comes nearest to *S. mixtus*, Kl., from which it is easily recognized by the marginal nervure (in the ♂) not being joined to the 3rd sub-marginal one; the black colour of the femora and mouth, and the broader red band of the abdomen, which has also its apex much more acute.

Both sexes were taken on the Gleniffer Braes, near Paisley, three years ago in June.

THE BRITISH SPECIES OF DINEURA.

So far as I can make out, Stephens describes only four species of *Dineura* (exclusive of *hemichroa*) in his "Illustrations," namely: *Degeeri*, *verna*, *parvula*, and *fuscula*; but evidently he had not the true exponent of the last species, as will appear from the reasons given below. The following are the species known to me as natives of Britain; and probably, in course of time, others will be added when the country has been better explored.

Dineura Degeeri, Kl., = *Nematus varius*, Lep.—This is the commonest species, and is found in most places in early summer among birch; the larva is got on the same plant in the autumn. Thomson places this and the next three species in the genus *Nematus*. All the species are subject to great variation in the neuration of the wings.

D. stilata, Kl.—Apparently a not uncommon species. Here the larva feeds on *Pyrus aucuparia*; and at Worcester Mr. J. E. Fletcher finds it on *P. torminalis*. A common variety occurs with only one marginal cell in the anterior wings.

D. testaceipes, Kl.—This species has been taken by Mr. James Hardy in Berwickshire, Dr. Sharp at Dalry, and myself in Inverness-shire. The commonest form met with in this country (and it is also that which Thomson describes) has the abdomen nearly all testaceous beneath. It is, I am almost certain, identical with *D. ventralis*, Zaddach (Beschreibung neuer oder wenig bekannter Blattwespen, p. 10, fig. 3). The alar neuration in most of my specimens does not quite agree with Zaddach's figure, but in one example it does; and at the best very little reliance can be placed in the neuration, so variable is it. But it may be after all a distinct species, for it is stated by Zaddach (*l. c.*) that Herr Brischke had bred *testaceipes* as well as *ventralis*, a statement that would lead one to conclude that the larvæ of the two differed. The larva of *ventralis* only is, however, described, and it feeds, like *stilata*, on *Pyrus aucuparia*. The other variety of *testaceipes* is a little larger; it has the abdomen quite black, or with only a portion of the anal segment testaceous; and the antennæ have the under-surface only very faintly testaceous. This is, I presume, the true *testaceipes* of Klug and Hartig.

D. verna, Kl., = *Tenthredo punctigera*, Lep., = *Selandria biloba*, Ste. (*var.*), Ill. vii, 54, 39, = *Dineura opaca*, Htg. (*nec Tenthredo opaca*, Fab.), = *D. pallipes*, Htg. (*var.*), = *D. dorsalis*, Foerster (*var.*), = *Nematus opacus*, Thoms.

DINEURA SELANDRIIFORMIS, *sp. n.*

D. nigra, sub-nitida, ore, tegulis, pedibusque albidis; pronoto fere toto, ventre subtùs, anoque pallide rufescentibus; femoribus anticis basi, posticis fere totis, posticis tarsis et tibiarum dimidio apicali, nigris; alis hyalinis, stigmate fusco. *Long. fere* 2¼ *lin.*

♀. Antennæ about the length of the head and thorax, black, moderately thick, the 3rd and 4th joints nearly equal. Head black, very slightly downy; the clypeus and labrum white. Thorax black, shining, slightly downy; the pronotum almost entirely reddish; the tegulæ white. The cenchri are scarcely distinguishable. Abdomen of the length of the head and thorax, black above, the sides, extreme apex above, and ventral surface, dull reddish. Wings hyaline, costa and stigma fuscous, the costa a little paler than the stigma; the 1st sub-marginal nervure is very faint, the 3rd sub-marginal cell is longer than broad, widest at the apex. The marginal nervure is received a little in front of the middle of the 3rd sub-marginal cell; the 2nd recurrent a little in front of the 2nd sub-marginal. Legs testaceous; anterior femora at the base slightly, posterior entirely (except the knees), the apical half of the posterior tibiæ, and the posterior tarsi, black, the four anterior tarsi faintly fuscous.

There is a variety of *verna*, having some resemblance to this insect, but differing from it in the following points: the marginal, 2nd sub-marginal, and 2nd recurrent nervures are all joined together; it has the body much more downy, larger and stouter; the antennæ are thicker, and apparently shorter in proportion; and, finally, the posterior tibiæ and tarsi are white.

One example has been taken at St. Albans by the Rev. T. A. Marshall.

D. parvula, Kl.—This is described by Stephens (Ill., vii, 52, 31), but I have never seen a British specimen. It is placed by Thomson in *Blennocampa*, next to *B. pusilla*.

D. fuscula, Kl.—This is also described by Stephens (Ill., vii, 50, 24); but as Mr. F. Smith could not find the true *fuscula* (which I sent to him to be compared) among his specimens, I suppose that Stephens had quite another insect, perhaps *Blennocampa pusilla*, which Hartig states is the ♀ of *fuscula;* but Zaddach has corrected this error. The only example that I have seen (which was taken in in Cadder Wilderness in May) has only three sub-marginal cells as in *Dolerus;* and this fact makes me think that *Dolerus* (*Pelmatopus*) *minutus*, Htg., is the same species, for it agrees very closely as regards size and coloration with *fuscula*, or if not, I am certain that it should be placed in the same genus. If Thomson's views are to be followed, *D. fuscula* will require to be transferred to *Blennocampa*.

THE BRITISH SPECIES OF CLADIUS.

Without an examination of his types, it seems almost impossible to identify some of the species of *Cladius* described by Stephens, on account of the unsatisfactory nature of the descriptions. Mr. Smith, in his "Nomenclature of Hymenoptera," gives one species of *Cladius*, seven of *Trichiocampus*, and four of *Priophorus;* but, after an examination of a large number of specimens from England and Scotland, I have not been able to identify more than five species, as noted below, a number that is certainly more in harmony with the views of recent authors. I have also females of what are probably *C. Brullæi*, Dbm., and *C. Drewseni*, Thoms.; but I cannot be quite sure that they are correctly named until I get males.

Cladius difformis, Pz.

C. rufipes, Lep., = *uncinatus*, Htg.

C. eradiatus, Htg., = ? *morio*, Lep.

C. viminalis, Fall., = *grandis*, Lep., = *luteicornis*, Ste., = *eucerus*, Htg.

C. padi, Linn., = *albipes*, Fall., Htg., = *pallipes*, Lep., = *pilicornis*, Curt., = *immunis*, Ste.—This is the commonest species of the genus, and it is subject to considerable variation in the coloration of the legs. At the end of last October, I found a batch of the larvæ still feeding on the wild rose. I often get larvæ without the usual black mark on the head.

THE BRITISH SPECIES OF TRICHIOSOMA.

Our *Trichiosomæ* are involved in considerable confusion; and in order, as far as possible, to rectify this, I give here a synonymic revision of the species. The references to the Stephensian species are worked out from the descriptions, and they will, I think, be found correct, although of course an examination of the types would have been far more satisfactory; but this I have not been able to do. I have fortunately succeeded in rearing all the species, and this has greatly simplified their identification, besides making it more sure. On the other hand, I have not been at all successful in breeding the *Cimbices*, so that a revision of these must stand over until I have collected more material.

Trichiosoma lucorum, Linn., = *Latreillii*, *Scalesi*, and *unidentatum*, Leach, *pusillum* and *biverrucatum*, Ste.

T. betuleti, Kl., = *tibiale*, Ste.; *cratægi*, Zaddach.—Thomson considers *betuleti* to be a variety of *lucorum;* but in this opinion I do not agree with him at present, because the earlier stages of the two are not quite identical. At the same time I am open to be convinced that the differences between them are not sufficiently great to warrant their separation. Prof. Zaddach has renamed the species *cratægi*, as that is a more appropriate name; but as Klug's description is quite recognizable, I do not think that his name (having the priority) should be set aside, merely because the insect does not feed on birch, if that is even always the case.

T. sorbi, Htg., Stett. Zeits., 1840, p. 20; Ratzeburg, Die Forstinsecten, 136; Zaddach, Schrift. d. königph. physik.-ökonom. Gesell. zu Könisberg, 1862, 261, pl. ii, figs. 8—10; Thoms., Hymen. Scand., i, 23, 1.

T. vitellinæ, Linn., = *sylvaticum* and *laterale*, Leach.

Pœcilosoma guttatum, Fall.—Thomson (Hymen. Scand., i, pp. 231—233) has split up the *Tenthredo guttata* of Fallén (*impressa*, Kl.) into four species, which he names *guttata*, *longicornis*, *submutica*, and *excisa*. Of these, I have been able to identify as British, *guttatum*, *submuticum*, and *excisum*; but I am not at all sure if the two last mentioned and *longicorne* are really good species; they seem to differ but little from each other; and it is very desirable that some information should be obtained regarding their earlier stages, so as to settle the question whether they are distinct species or not. *P. guttatum* is quite different from the other forms, and may be known from them by its half-smoky wings. The only specimen that I have seen of it was taken by Mr. J. E. Fletcher at Worcester. *Selandria Klugi*, Ste., is clearly a *Pœcilosoma;* it perhaps = *submuticum*, Thoms.

Eniscia, Thomson, Opusc. Ent., p. 299 (1870), Hymen. Scand., i, 261, = *Sciapteryx*, Stephens, Ill., vii, 56 (1835).

Phyllotoma tenella, Zaddach, = *Druida parviceps*, Newman (1837), = *Tenthredo nemorata*, Fallén (1808).

Emphytus lepidus, Klug, = *Harpiphorus lepidus*, Hartig (1837), = *Asticta Ianthe*, Newman (1838).

Perineura viridis (Linn.), Thomson, = *Tenthredo picta*, Klug. According to Thomson, *T. viridis*, Klug (*nec* Linn.), = *T. mesomela*, L.

136, West Graham Street, Glasgow:
February, 1875.

Notes on British Hemiptera.—I cannot let Messrs. Douglas and Scott's remarks on my last month's paper pass unnoticed. I see that in four cases they give their decision against mine, because Dr. Fieber has seen and named the specimens from which they have described. Now, although I most fully acknowledge the value of Dr. Fieber's most excellent works, yet there is no reason why he should not at times have made mistakes, and the fact is that he has made many mistakes in the naming of our British *Hemiptera*. *Berytus commutatus*, *Stethotropis incana*, and *Litosoma bicolor* are three owned to by Messrs. Douglas and Scott in your January number, the two latter of which I suggested to them myself, and they have previously corrected several others. I do not put these forward for the sake of showing the imperfections of Dr. Fieber's work, but to prove that it is unreasonable to hold up his opinion as decisive, as though he could not err. Of course I may be wrong in my views, but if so, I think that Messrs. Douglas and Scott should show me how I am wrong, and therefore I cannot allow myself to be silenced by a simple appeal to Dr. Fieber's authority. I append a few notes to some of the species.

Berytus Signoreti.—I have looked at Lethierry's description of *pygmæus*, and think mine may not impossibly be the same. I hope Messrs. Douglas and Scott's will prove to be the true *Signoreti*, Fieb.

Campylosteira verna, Fall.—I cannot see in either Herrich-Schäffer's or Fieber's descriptions or figures any mention of a second row of meshes either on the pronotum or on the margin. I suppose, as Mr. Douglas says "ours *is* the true *verna*, Fall.," that he has seen the original type, and if so, I have no more to say.

Phytocoris marmoratus, D. & S.—Will Mr. Scott say how this species differs from *tiliæ*? At the end of his description (Ent. Mo. Mag., v, p. 263) he only says that "its general darker appearance may serve to distinguish it from that insect." If there are any better characters than this, I hope he will point them out.

(Tinicephalus) obsoletus, D. & S.—When an author makes and characterizes a division, and puts an insect into it which does not agree with the characters of such division, I do not think it is going too far to say that he has made a mistake, and I am only sorry that Mr. Scott should wish to abide by such an error.

Psallus dilutus, D. & S., *nec* Fieb.—The printer may have erred in changing the one into two and the half into one-third, but if so, and Messrs. Douglas and Scott's insects are the true *dilutus*, Fieb., then I consider *dilutus* and *alni* as identical, and if they are not, I should much like to hear from Mr. Scott how they differ.—Edward Saunders, 2, Spencer Park, Wandsworth: 10*th March*, 1875.

Occurrence of Botys nubilalis (lupulinalis) in London.—Going home late one night last July, down one of the broad thoroughfares south of London Bridge, I caught sight of a moth—evidently a *Pyralis*—sitting on a window, attracted by a brilliant gas-jet inside. Of course my instant thought was "*forficalis*," but it did not look like that species, so was quickly consigned to a pill box. At home, what was my surprise to find that my capture was a total stranger, altogether unlike any species previously known to me; and it turned out equally puzzling to the best authorities. So I sent it to Professor Zeller, who pronounced it to be *Botys nubilalis*, Hübner, ♂; but also *B. lupulinalis*, Gn., D. L. The usual form of *B. lupulinalis*, however, as described by Mr. Stainton in the Manual, and exhibited in a ♀ specimen from Germany, and two males from the Isle of Wight, in Mr. Doubleday's collection, is very different from my specimen, which is of a pale *fuscous* (the colour of *Botys fuscalis* in fact), with a yellow spot between the stigmata; and also the first and second transverse lines, and a conspicuous streak along the fold, uniting them, pale yellow. It appears that this form of the ♂ is not unusual on the Continent, and, indeed, Hübner's figure is much *darker* than my specimen. The ordinary form (not *ordinary* perhaps in this country, as it is excessively rare) is pale straw-coloured, with fuscous lines and stigmata.

The larva of this species is said, by Treitschke, to feed within the stems of hop, and Prof. Zeller tells me that he has taken it among that plant, while Guenée's name has obviously the same derivation; but Freyer gives an extract of a paper by Herr Schmidt, of Laibach, stating that the larva feeds within the stems of a grass *(Panicum miliaceum)*, destroying the plants so that they break off, and wintering in the stems (stubbles). Zeller adds that he has found the larva in this plant in millet fields, and that it is easily discovered by the withered appearance of the panicle, and a blackened hole in the stem. It has also been said to feed in the stems of *Marrubium vulgare*, and appears, therefore, to have a wide range of food-plants, but which of them is accountable for the appearance of this specimen in the heart of South London it is difficult to conjecture. Hop warehouses are not scarce in the neighbourhood, but to any one who knows how tightly hops are packed, it would seem very improbable that they should be made the means of conveying an insect which feeds in the stems of the plant.—Chas. G. Barrett, Pembroke: *March*, 1875.

Description of the larva, &c., of Heliothis dipsacea.—Greatly indebted for the help received from several good Entomologists, I here return my thanks to them for all the opportunities they have so kindly afforded me for studying the larvæ of this species, and, indeed, without repeated help, I should have chronicled nothing but failure; what with cannibalism amongst the larvæ themselves, ichneumons, and drying up of pupæ, out of eleven examples received at various times, I have reared but one moth, although I believe I have still some pupæ of 1873 alive.

My first acquaintance with the larvæ was in August, 1867, when one was found in Gloucestershire, feeding on a blossom of purple clover, and sent me by the Rev.

E. Hallett Todd; I then guessed it to be a *Heliothis* by its spiracles and texture of skin, but, as it eventually died, its portrait remained among the unknowns, for future identification.

On 25th of August, 1870, Mr. Harwood sent me a similar larva, found in Norfolk, eating the seed capsules of *Silene otites;* and on September 14th, another arrived from Lord Walsingham, with a notification from him that he believed it to be *dipsacea;* this last was fed on sorrel for a few days, but did not thrive, until some green seed-pods of toad-flax were substituted, when a surprising improvement appeared in its condition, and it soon grew to maturity;—but both this and the other example died after spinning up for pupation.

In August, 1873, my hopes were raised high by the acquisition of several larvæ, found, and sent me from Essex, by Mr. Harwood; most of them he had taken on *Ononis arvensis*, and they were nearly full-fed, and soon retired into the sandy soil provided for them; and there some of them still remain. The last example I received, the one which has—by appearing in the perfect state—enabled me to identify all my previous figures, was found on *Crepis virens* in Norfolk, and forwarded to me September 10th, 1873, by Mr. W. H. Cole; from this the moth appeared on the 10th of July, 1874.

From observing the habits of all these examples, I conclude that the natural food of the larva, from near half-growth onwards to maturity, is confined chiefly to *flowers* and *unripe seeds* of various species of *Silene, Ononis, Trifolium, Crepis, Hieracium, Linaria,* &c.

The full-grown larva when at rest is about 1⅛ inch in length, and 1¼ when stretched out, of moderate stoutness, the body, thickest at the middle segments, tapers very little towards the head, and rather more towards the anal extremity, with a sudden slope down on the back from the middle of the twelfth segment, the thirteenth being rather elongated, and the anal legs extended behind it, the other segments plump and well defined; the head, which has rounded lobes, can be partly withdrawn into the second segment; the tubercular dots small, each bearing a fine hair, and the skin is partially roughened, as hereafter described.

The ground colour is varied, straw colour, light drab, greenish-ochreous, full green, brilliant yellowish-green, rather glaucous-green, olive-green, rose-pink, and deep purplish-brown have all occurred; but in each individual the design has been the same in details as follows:—The head often green, but sometimes pinkish, is freckled with black or brown on the crown of each lobe; the dorsal line is the finest thread of ground colour, enclosed by a pair of much darker lines, which commence on the third segment, and thicken gradually as they approach the middle of the body, from whence they by degrees narrow again towards the end of it; on either side of the back run two pairs of longitudinal, rather meandering, lines, a little darker than the ground colour; the subdorsal stripe of uniform width is either white throughout, or white on the second segment and afterwards pale yellow, or becoming faintly tinged with ground colour, or else greenish throughout; when viewed sideways, it is seen to rise upwards a little in its course along the twelfth segment, and to form an angle by its sudden return to its former direction on the side of the anal flap, where it ends in a point; immediately beneath this conspicuous stripe is a broad longitudinal band of ground colour greatly filled up with darker colour than that of the back, its upper edge the darkest; next below comes the spiracular line, either whitish, greenish, or pale yellow, and on it the *circular* white or pale ground-coloured spiracles, outlined with black, are placed; then comes a stripe of ground colour, or else ochreous or green, followed by a line of white, which runs down the front of the anal leg; the belly is of the ground colour, with a darker rather interrupted band above the legs, which are of the ground colour, or else greenish. The texture of the skin in the darker lines and parts is rough, being composed of extremely short and minute bristly blackish points; while in the intervals, and on all the pale stripes, it is smooth.

The pupa is five-eighths of an inch in length, of moderate bulk, the head and palpi rather sharply produced, back of thorax swollen, wing-covers broad at the ends; abdomen tapering, and ending in two longish anal points, the abdominal rings roughened on the middle: the colour a pinkish red-brown; but I see the pupæ that are standing over to the second year have become dark brown. The cocoon, composed of silk of the weakest texture, is very flaccid, but no doubt protects the pupa in the sandy soil.—WILLIAM BUCKLER, Emsworth: *March* 12*th*, 1875.

Captures of Noctuidæ at St. Catharines in the Province of Ontario, Canada West.—In the spring of this year I commenced collecting the *Noctuæ* of this part of Canada, and in the hope that a list of my captures, and the dates of appearance, may be of interest to English Entomologists, I venture to send the same for publication.

Being a stranger to the insect fauna of North America, and in the absence of anything like a Manual of this *Heterocera*, I should, even with the assistance of the British Museum Catalogues and Guenée's work, have had great difficulty in identifying my specimens. Fortunately for me, this difficulty was removed by Mr. Grote of Buffalo, who in the kindest manner has, from time to time, named my material. For this courteous assistance I am under lasting obligations. I have thought it advisable not in all cases to adopt the genera of Mr. Grote's "List of North American Noctuidæ," for in the unsettled state of nomenclature at present existing, I prefer the arrangement of M. Guenée.

This I moreover do for reasons not necessary here to mention. It will be observed that there are in my list several species, and even some genera, hitherto new to science. These have been published by Mr. Grote in various journals.

Many of the *Homopteridæ* I have omitted altogether, as it seems hopeless to indentify them by the meagre descriptions existing. Finally, Mr. Grote has still several specimens yet undetermined; these will have to be added to the list. The country in this immediate neighbourhood is not favourable for collecting, being so sparsely wooded. In the *Rhopalocera* it seems to me to be very poor in species. *Papilio Turnus* is rare, the larvæ I found on *Laurus sassafras*. *P. Asterias* very common, the larvæ on carrots, parsnips, and other umbelliferæ. *Danais Archippus* very common, the larvæ on milk-weed *(Asclepias)* by the way, one of the best plants I know of as an attraction for *Noctuæ*. *Vanessa Antiopa* very common, and I think larger than in Europe. *Colias Philodice* very abundant all the season, while our adventurous Britisher, *Pieris rapæ*, is now by far the commonest butterfly here, the larvæ making a clean sweep of everything eatable in the way of coleworts. The large

Saturnidæ are not uncommon. The cocoons of *P. Cecropia* and *Polyphemus* common on the twigs of *Acer dasycarpum* and other shade trees, while *Promethea* and *Attacus Luna* are not uncommon.

Many hawk moths abound; for instance, *Sphinx quinquemaculata* is very common, the larvæ eating the tomato, and hence called "tomato bugs," for everything alive in this country is called a bug. *Deilephila Chamænerii* and *lineata* are very common over flowers.

Thyatira cymatophoroides, 14th July, sugar, not common; *expultrix*, 23rd June to July, not common at sugar.

Raphia frater, 25th June, rare at sugar.

Acronycta occidentalis, 2nd June, common at sugar and rest until August; *morula*, 10th July, rare at rest; *connecta*, 12th August, rare at sugar; *hastulifera*, 26th June, not common at rest; *dactylina*, 24th July, rare at sugar; *brumosa*, 17th May, July, and August, not uncommon at rest and sugar; *Verrilli*, 20th July, rare at sugar; *noctivaga*, 6th June to August, rare at light and sugar; *superans*, 25th June, July, not unfrequent at sugar; *ovata*, 18th June, bred, rare at sugar; *subochrea*, n. s., 2nd July, rare at sugar; *dissecta*, 17th June, two specimens at rest; *oblinita*, 26th May, at rest, very frequent, a second brood in August, cocoons very common on palings.

Bryophila lepidula, 16th July, rare at sugar; *palliatricula*, 29th June, frequent at rest and sugar.

Noctua sigmoides, 29th June to August, not unfrequent at sugar; *augur*, 3rd July, common at sugar; *baja*, 3rd August to September, very common at sugar; *C-nigrum*, 11th June to September, very common at sugar and light, specimens larger than in Europe; *bicarnea*, 31st July to September, very frequent at sugar and at lime blooms; *Normaniana*, n. s., 31st July to September, frequent at sugar. This has hitherto, I believe, been considered the same as *N. triangulum*: I am reminded much more of *N. depuncta*, which seems its nearest ally; *clandestina*, 19th June to July, common at sugar and lime blooms; *brunneicollis*, 2nd July to September, rare at sugar; *alternata*, 1st July to September, very common at sugar; *cupida*, 17th July, August, frequent at sugar; *rubi?* 4th August, rare at sugar.

Agrotis herilis, 31st July to September, very common at rest, sugar, and light; *tricosa*, 3rd August to September, very common at rest, light, and sugar; *subgothica*, 9th August to September, not so frequent as the preceding two species at rest, sugar, and light. All three species very abundant on flowers of thistle *Cnicus arvensis*, and unopened flowers of *Verbascum thapsus*; *Fennica*, 10th August, one specimen at rest. This seems to be quite as rare on this continent as in Europe, only two or three specimens, I believe, are known in the Cabinets here, and these from Labrador and California; *tesselata*, 29th June, bred from larvæ found in abundance at roots of *Malva rotundifolia*, &c., in May, afterwards, to end of July, swarming at sugar, rest, and lime blooms. Many remarkable and beautiful varieties just as in our *tritici*; *Cochrani*, 27th July, bred, afterwards, to September, common at sugar and rest; *saucia*, 14th August, not uncommon at sugar; *suffusa*, 2nd June to October, swarming at sugar, flowers, and light. Larger and more strongly marked than in Europe; *venerabilis*, 6th September, not unfrequent at light, sugar and in breeding case.

Aplecta pressa, n. s., 6th July, lime blooms and rest, several; *herbida*, 27th June to September, common at rest, less frequent at sugar; *nimbosa*, 6th August, rare at sugar; *latex*, 30th May to June, not uncommon at rest.

Ammoconia badicollis, 31st July, rare at sugar.

Hadena subjuncta, 2nd July, rare at rest; *vicina*, n. s., 4th June, rare at sugar; *confusa*, 8th May, rare at palms; *albifusa*, 5th June to August, common at rest, flowers, and sugar; *claviplena*, 9th July, rare at sugar; *xylinoides*, 23rd May to June, common at rest and sugar. A second brood in August smaller in size.

Dianthœcia meditata, 11th August, not rare at sugar and rest.

Mamestra arctica, 22nd June to August, swarming at sugar, rest, and lime blooms, also bred from warty and maggoty-looking larvæ found under grass and logs in May; *devastator*, 24th June to September, by far the most common moth here, a perfect nuisance at sugar.

Apamea jaspis, 30th May to July, common at rest and sugar; *finitima*, 10th June, common at rest, more rarely at sugar. This species, though near our *basilinea*, is a much more beautiful insect; *mactata*, 31st August and September, common at rest and sugar; *modica*, 7th July to September, very common at sugar and rest; *reniformis*, 31st July to September, not uncommon at sugar. Represents, and is very near, *A. fibrosa*.

Celæna herbimacula, 23rd June to October, very common at sugar, light, and rest. Seemingly a succession of broods; *chalcedonia*, 25th June, rare at sugar.

Dipterygia pinastri, 14th June, not uncommon at sugar and rest.

Xylophasia apameiformis, 16th June, frequent at sugar and rest; *sputator*, 4th July to September, common at sugar, also bred; *dubitans*, 12th July, rare. One specimen in spider's web; *lignicolor*, 27th June to August, common at sugar and lime blooms; *verbascoides*, 9th July, rare, one specimen at sugar; *sectilis*, 15th June to August, not uncommon at sugar and rest; *cariosa*, 6th July, rare, one specimen at rest.

Cloantha ramosula, 18th May, rest (hibernated). 1st September, fresh specimen at rest, rare; *vomerina*, 8th May, rare at sallow palms, *Salix caprea*.

Phlogophora periculosa, 6th August, rare at sugar; *Iris*, 9th June, rare at sugar.

Euplexia lucipara, 2nd June to August, not common at rest and sugar.

Nephelodes violans, 1st September, common at light and sugar, but always in bad condition.

Luceria loculata, 27th June, not uncommon at sugar.

Hydrœcia lorea, 16th June to July, common at light flowers and sugar; *nictitans*, 21st July to August, common at sugar. Not so variable nor so beautiful as in Scotland; *sera*, 2nd July, very common at sugar and light.

Gortyna cataphracta, 22nd September, rare, bred in quantities from larvæ in the stems of *Arctium lappa*.

Scoleocampa ligni, 1st July, rare at light.

Leucania Henrici, 15th April, bred; *pallens*, 3rd July, not common at lime blooms; *phragmitidicola*, 7th June, not uncommon at light and sugar; *commoides*, 3rd July to August, common at lime blooms, sugar, and light; *unipuncta*, 3rd June to September, very common at sugar; *pseudargyria*, 11th July, rare at sugar.

Ufeus satyricus, 20th July, rare at sugar.

Caradrina miranda, 2nd June, not uncommon at light.

Amphipyra pyramidoides, 24th July to August, common at sugar; *tragopogonis*, 13th July, not uncommon at sugar.

Ceramica picta, 7th June, bred, larvæ afterwards on cabbage.

Matuta Catharina, n. g. et sp., 29th December, 1873, wings in spider's web; 11th May, at sallow palms, rare.

Perigrapha Normani, n. s., 11th May, rare at sallow palms, June, one at sugar.

Tœniosea gentilis, n. g. and sp., 30th June, very common at lime blooms, sugar, and at rest, until August; *perbellis*, n. s., 2nd July, rare at rest.

Tæniocampa alia, 2nd May to June, very common at palms; *oviduca*, 30th May, not unfrequent at light.

Orthodes infirma, 29th June, not unfrequent at sugar and light; *cynica*, 8th June, rare at sugar.

Cirrhœdia pampina, September 1st, common at sugar all the month.

Cerastis decliva, 21st September to October, common at sugar; *inulta*, 18th September, rare at sugar.

Orthosia infumata, n. s., 18th August, not uncommon at rest and sugar.

Xanthia ferrugineoides, 15th September to October, very common at sugar and with net; *euroa*, 9th September, not rare at rest.

Scopelosoma Morrisoni, 4th May, not uncommon at palms (hibernated). Fresh specimen, 18th October, at rest under a board; *devia*, n. s., 10th May, rare at palms.

Gonoptera libatrix, 4th May (hibernated), at rest. Fresh brood June to October, not unfrequent at sugar.

Xylina petulca, 5th May (hibernated), at palms. Fresh specimens, 11th September, common at rest and sugar; *ferrealis*, 5th May (hibernated), at palms. Fresh specimens, 19th September, rare at rest; *Bethunei*, 2nd May (hibernated) at palms. Fresh brood, 7th September to October, very common at rest and sugar; *disposita*, 5th May (hibernated), at palms. Fresh brood, September to October, not uncommon at sugar and rest; *cinerea*, 16th September, not rare at rest and sugar; *laticinerea*, 2nd May (hibernated), very common at palms and sugar. Fresh brood seems later than the last, viz.: 8th October, very frequent at sugar and rest. I never took *cinerea* in the spring; *tepida*, 8th October, rare at rest; *pexata*, 3rd May (hibernated), at palms. Fresh brood, 16th September to October, frequent at rest and sugar.

Calocampa nupera, 10th May (hibernated), single specimen at light.

Cucullia asterioides, 3rd June, common at flowers and rest.

Crambodes talidiformis, 13th June, rare with net at raspberry flowers.

Adisophanes miscellus, 2nd May, rare at rest.

Plusiodonta compressipalpis, 24th June, rare with net over *Philadelphus coronarius*.

Placodes cinereola, 19th June,not uncommon at light.

Abrostola ovalis, 16th August, rare at light. Many larvæ of some *Abrostola* afterwards at nettles.

Plusia œrea, 20th June, rare at light; *balluca*, June, rare at light; *precationis*, 3rd June to October, very common at flowers and rest; *simplex*, 1st June, rare with net over thistles (*Cnicus arvensis*); *mortuorum*, 2nd August, rather scarce at rest and over thistle flowers; *8-scripta*, 1st September, rare at rest; *ampla*, 21st July, rare with net over thistles.

Heliothis exprimens, 5th June, rather frequent over lilac and *Weigelia rosea*.

Acontia candefacta, 6th September, rare at light.

Oligia versicolor, n. g. and sp., 23rd June, rare at rest.

Leptosia concinnimacula, 1st June, common at rest and sugar.

Erastria carneola, 1st June to September, very common at rest and sugar; *synochitis*, 25th June, rare at rest; *nigritula*, 15th June, common at rest to July; *muscosula*, 9th June, very common at rest and sugar.

Chamyris cerintha, 29th June, rare. One pair at rest.

Drasteria erichtea, 10th May to August, common at light and sugar; *erichto*, June 12th, common at rest, sugar, and light.

Parallelia bistriaria, June 8th, common at rest and sugar.

Parthenos nubilis, 3rd June to September, very common at rest and sugar.

Catocala Epione, 27th July, rare at sugar; *insolabilis*, 29th June, rare at rest; *residua*, 1st August, not common at sugar; *relicta*, 4th August to September, common at sugar and rest; *unijuga*, 18th August, not rare at sugar; *Briseis*, 5th August to September, not uncommon at sugar and rest; *parta*, 20th July to September, common at rest and sugar; *ultronia*, 11th July to August, very common at rest and sugar; *concumbens*, 4th August to September, very common at rest and sugar; *amatrix*, 27th August to September, common at rest and sugar; *cara*, 20th August to September, less common than the last at rest and sugar; *innubens*, 2nd August, very common at rest and sugar; *innubens*, var. *scintillans*, 8th September, rare at sugar; *cerogama*, 31st July to September, very common at rest and sugar; *neogama*, 24th July to August, common at sugar and rest; *piatrix*, 17th August, not rare at sugar; *habilis*, 20th August, not uncommon at sugar; *cœlebs*, n. s., 18th August, rare. One specimen at sugar, Strathsallow; *Clintoni*, 11th July, rare. One specimen at sugar; *polygama*, 8th July to August, very common at sugar and rest.

Homoptera lunata, 2nd May to June, common at rest and sugar; *Saundersii*, 17th June, common at rest and sugar; *edusa*, 11th August to September, not uncommon at sugar and rest.

Ypsia undularis, 23rd May to June, common at sugar and rest. Apparently a second brood in August.

Pseudaglossa lubricalis, 10th July, common at sugar and lime blooms.

Epizeuxis americalis, 9th July, common at sugar.

Chytolita morbidalis, 23rd June, common at sugar.

Palthis angulalis, 24th June, rare at sugar.

Bomolocha baltimoralis, 21st June, very common at rest and sugar; *abalienalis*, 14th June, common at rest and sugar.

Hypena subrufalis, 29th June, not common at rest.

Platyhypena scabra, 23rd July to November, common at rest and sugar.—GEO. NORMAN, St. Catharines, Ontario: 1*st November*, 1874.

Obituary.

Dr. John Edward Gray, F.R.S., &c. Dr. Gray died at the British Museum on the 7th March, at the age of 75, he having been born at Walsall, in Staffordshire, in the year 1800. Although his entomological publications have been few, it would be scarcely right that we should content ourselves with a simple notice of his death. He was originally intended (we believe) for the medical profession, but, so far as we are aware, never completed his medical studies, his taste taking a special turn towards the pursuit of Natural History; and, as Prof. Westwood (five years his junior) remarked at the last meeting of the Entomological Society, he was, when a very young man, a fellow pupil (if it may be so called) with Westwood, of Haworth, and helped him to arrange his collection of insects and entomological books. In 1824 he was appointed an assistant in the Zoological Department of the British Museum, of which, in 1840, he became Keeper,—a position which he resigned in December last, having completed fifty years of service. There are probably few men who possess so varied a knowledge of Natural History as Dr. Gray did. It may safely be asserted that he has published works and papers on every branch (including Botany), and there is no Society in London devoted to the Natural Sciences in which he has not, at some time or other, held a prominent position. It would be probably within the mark if we were to estimate the number of his published papers at 700 or 800; and, although during the past few years he was more or less crippled from recurrent paralytic attacks, his intellect and love of controversy remained as keen as ever. That he did much towards rendering our National Collection the richest in material in the world is undoubted, not unfrequently disbursing from his own pocket, in the first instance, amounts necessary to secure particular specimens or collections desirable for the Museum, trusting to be re-imbursed when there should be sufficient funds in hand from the annual grant to his department. Perhaps to his peculiar temperament it was due that even towards those who would be the first to acknowledge his great attainments and services to Natural Science, there was sometimes an appearance of a lack of courtesy, and of a desire to rush into violent controversy. To this also we, as entomologists, think is to be attributed the fact, that in spite of remonstrances of the strongest nature, both at home and abroad, he continued to allow (we might almost say command) the issue of such Catalogues as those referred to in a recent obituary notice in this Magazine. We gladly, however, remember that in addition to his numerous and versatile memoirs on Natural History, Dr. Gray has done good and lasting service in the department of periodical literature, more especially as one of the editors of the 'Annals and Magazine,' in the affairs of which he for a long time took an active part, and in which he published some of his most valuable papers. His position as Keeper of the Zoological Collection has been filled (as most of our readers probably already know and appreciate) by the elevation of Dr. Günther, who in his turn is replaced as Assistant-Keeper by Mr. Frederick Smith.

BRITISH *HEMIPTERA*.—ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS.

RHYPAROCHROMIDÆ.

SCOLOPOSTETHUS AFFINIS.

Pachymerus affinis, Schill., Beitr., 80, 23 (1829).

„ *decoratus*, *a*, Hahn, Wanz., i, 139, t. 22, f. 71 (1831).

Scolopostethus affinis, p. Fieb., Eur. Hem., 189, 6 (1861); p. D. and S., Brit. Hem., 185, 3 (1865); Leth., Cat., 25 (1869), id., 2 edit., 20 (1874); var. *b*, p. Stål, Oefv. Vet. Ak. Förh., 220, 1 (1862).

Lygæus affinis, Thoms., Opusc. Ent., ii, 201, 52 (1870).

Antennæ thick: 1st joint pale orange, very rarely dusky on the upper surface (♂), or with a large black spot or wholly black, on the upper side (♀); 2nd pale orange, distinctly black at the apex; 3rd and 4th joints black. *Elytra: corium* with sub-erect, pale golden hairs. *Legs—thighs:* 1st pair black, yellow at base and apex; 2nd and 3rd pairs pale orange, the 2nd sometimes with a blackish spot, and the 3rd with a large brown or black spot or ring, before the apex.

Usually brachypterous. Generally, but locally, distributed.

SCOLOPOSTETHUS ERICETORUM.

Scolopostethus ericetorum, Leth., Cat., 25 (1869), *id.*, 2 edit., 20 (1874).
„ *affinis*, p. Fieb., *l. c.;* D. and S., *l. c.;* var. *a*, Stål, Oefv. Vet. Ak. Förh., 219, 1 (1862).
Lygæus melanocerus, Thoms., Opusc. Ent., ii, 202, 56 (1870).

Antennæ not thick, black, except the basal third of the 2nd joint, which is pale ferruginous. *Elytra—corium* smooth, without hairs. *Legs—thighs:* 1st pair brown or black, apex yellow; 2nd and 3rd yellow, with a black ante-apical ring, generally narrower on the 2nd pair.

Found only under heather.

The foregoing two species have been usually mixed together, but I think M. Lethierry has shewn good cause for their separation, of which the chief distinguishing characters are given above.

SCOLOPOSTETHUS ADJUNCTUS.

Scolopostethus adjunctus, D. and S., Brit. Hem., i, 183, 2 (1865).
Pachymerus decoratus, Abänd., *b.* and *c.*, Hahn, Wanz., i, 139 (1831).
„ *podagricus*, p. Flor, Rhyn. Liv., i, 279 (1860).
Scolopostethus affinis, var. *b.* p., Stål, Oefv. Vet. Ak. Förh., 220, 1 (1862).
Lygæus podagricus, Thoms., Opusc. Ent., ii, 201, 55 (1870).
Scolopostethus podagricus, Leth., Cat., 2 edit., 20 (1874).
Lygæus decoratus, Thoms., *l. c.*
Scolopostethus decoratus, Leth., *l. c.*

Lygæus podagricus, Fab., according to the description, might possibly be a *Scolopostethus*, but, if so understood, no mention whatever being made of the antennæ, which in this genus afford good differential characters, the description may apply to several of the species. In this sense Flor uses the name, for he avowedly associates under it, as one species, *Pachymerus pictus* and *affinis*, Schill., and *P. decoratus*, Hahn, with its so-called varieties. Fallén cites the Fabrician name doubtfully, and his description, on the whole, agrees best with *P. pictus*, Schill. Fieber does not advert to *podagricus*, Fab., but quotes the name as of Fallén, and puts it as a synonym of *P. pictus*, Schill. Thomson also passes over the Fabrician description altogether, and, citing Fallén as the author of the name *podagricus*, applies it to the form of *Scolopostethus* which has the first two joints of the antennæ entirely yellow, the mesosternum bi-tuberculated, and the membrane of the elytra wanting; while he refers to *decoratus*, Hahn, the macropterous examples of the same form, having the same kind of antennæ, but in which the tubercles of the mesosternum have disappeared by reason of the correlative development of the elytra. If these were really two species, the names would be untenable, but both forms were first (and rightly) comprehended as one species under the name *S. adjunctus*, D. and S. Stål, in his "Hemiptera Fabriciana," ii, 122, 142 (1869), refers *Lygæus podagricus*, Fab., to the genus *Eremocoris*, Fieb.

Finally, to clear up this *imbroglio*, seeing that Fabricius wrote "Habitat in Anglia. Mus. Dom. Banks," I determined to refer to the Banksian collection still preserved in the British Museum, and the examination of the unique typical example has proved not only that Stål was correct in his reference to the genus *Eremocoris*, but that the long lost *podagricus* is identical with *Lygæus erraticus*, Fab.! The former name is the older, and the description of *podagricus* in some respects suits *erraticus* better (*e. g.*, "Femora antica crassissima, bidentata," for the description of *erraticus* has "femoribus anticis unidentatis," which is incorrect); but the identity of *Eremocoris erraticus* with the Fabrician species not having been questioned, the synonymy, as far as Fabricius is concerned, will be as follows:—

EREMOCORIS PODAGRICUS.

Cimex podagricus, Fab., Mantissa, ii, 302, 238 (1787); *Lygæus podagricus*, Fab., E. S., iv, 167, 111 (1794); S. R., 232, 142 (1803).

Lygæus erraticus, Fab., E. S., iv, 167, 109 (1794); S. R., 232, 139 (1803).

NOTOCHILUS, Fieb.

Wien. Ent. Monats., viii, 68 (1864).

NOTOCHILUS LIMBATUS.

Notochilus limbatus, Fieb., Verh. zool.-botan. Gesells. Wien, xx, 257, 1 (1870).

Scolopostethus crassicornis, D. and S., E. M. M., viii, 24 (1871).

As indicated, *l. c.*, the British example from which the description was made, then and still unique, has some points of divergence from the genus *Scolopostethus*, although it was not then referred to *Notochilus*, Fieb., to which it really belongs; but five species being now described, the validity of the genus must be admitted. M. Lethierry, of Lille, has had the goodness to send me an example of *N. limbatus*, which agrees exactly with Fieber's description. Our insect is identical, except that in it the second joint of the antennæ is black, and rusty-yellow only at the extreme base; whereas, in his, the lower half of the second joint is rusty-yellow; but, although this coloration appears to be a constant character in French examples, yet, as ours differs only in this respect, I am obliged to consider it as only a variety of *N. limbatus*.

M. Lethierry says (Cat., p. 20) that he finds the species in April, sometimes rather commonly, but only in one locality in a wood, near a sand-pit, by sifting moss, under which are several nests of three species of ants, *Ponera contracta*, *Myrmecina Latreillei*, and *Formica rufa;* he also once obtained several examples in the interior of the nests of the last.

RHYPAROCHROMUS, Curt., D. and S.

(*Megalonotus*, Fieb.)

RHYPAROCHROMUS SABULICOLA.

Lygæus sabulicola, Thoms., Opusc. Ent., ii, 190, 23 (1870).
Megalonotus sabulicola, Leth., Cat., 2nd edit., 15 (1874).

Black, clothed with golden pubescence.

Head in front and before the eyes with long projecting hairs. *Antennæ* short, black, 1st joint at the apex, 2nd and 3rd except the apex, rufous. *Pronotum* slightly, but posteriorly coarsely, punctured, the sides with long projecting hairs. *Elytra—corium* light brown, posteriorly with a black blotch, in which are two pale spots, the disc clothed with short, sub-depressed, black hairs, and having black punctures in distant rows; *membrane* pale fuscous, a distinct yellowish spot at the inner basal angle, and a small one at the outer angle; nerves broadly whitish in the middle; or the *membrane* is abbreviated, fuscous, with a pale spot under the apex of the corium and indications of pale nerves. *Legs—thighs* black, the extreme apex of all, the basal third of the 2nd and 3rd pairs, the *fulcra*, all the *tibiæ* wholly (except sometimes the 1st pair at the extreme apex), the 1st and 2nd joints of the *tarsi*, and the *claws*, rufous.

Under-side clothed with delicate, silvery pubescence. Length, 1¾–2 lines.

This species, as M. Lethierry says *(l. c.)*, has doubtless been confounded with *R. chiragra*, Fab. It is distinguished from the latter by its much smaller size, by the shortness, positive and relative, of the antennæ, by the redness of the 3rd as well as of the 2nd joint thereof, by the slighter puncturing of the posterior portion of the pronotum, by the base of the 2nd and 3rd pairs of thighs being broadly red, and by the redness throughout of all the tibiæ.

I have two specimens taken on the sand-hills at Deal, one in May, the other in September, 1872.

RHYPAROCHROMUS CHIRAGRA, Fab.

Var. n. *nigricornis*.

Under this name I wish to record a form, of which I have two examples, which differs from the typical *R. chiragra* chiefly by the antennæ being wholly black. This peculiarity has never been recorded, so far as I am aware, and the capture of more examples, or the re-examination of those in collections, may possibly result in establishing this form as a species.

PERITRECHUS NUBILUS.

Lygæus nubilus, Fall., Hem. Suec., 54, 10 (1829); Thoms., Opusc. Ent., ii, 193, 30 (1870).

Pachymerus nubilus, Flor, Rhyn. Liv., i, 246, 9 (1860) ?.

Differs from *P. puncticeps* (infra) in being distinctly broader throughout and (in my example) of a lighter colour. The *head* is less perceptibly punctured; the *eyes* are less prominent; the *antennæ* are thinner and slightly shorter; the *pronotum* is proportionally broader in front, rather shorter, the sides straighter, and the posterior light coloured portion of the disc more distinctly defined; the *membrane* of the elytra paler.

I have a single example, taken many years ago and of which the locality is not noted, which is very like, but differs as above stated from, *P. nubilus*, Fieb.; this I have recently sent to Dr. J. Sahlberg and M. Lethierry, and they both agree with me that it is *Lygæus nubilus*, Thoms., *nec* Fieb. It certainly agrees better than Fieber's species with *L. nubilus*, Fall., and as Thomson has been the first to separate the two it may be best to believe that he is right in his definition of Fallén's species.

M. Lethierry says that this species is common in the spring, under moss, at Lille. It is probably to be found in our southern counties, or has probably already been mistaken for the following.

PERITRECHUS PUNCTICEPS.

Lygæus puncticeps, Thoms., Opusc. Ent., ii, 193, 31 (1870).

Beosus nubilus, F. Sahlb., Geoc. Fenn., 65, 29 (1848); *Peritrechus nubilus*, Fieb., Eur. Hem., 184, 2 (1861), D. and S., Brit. Hem., i, 189, 2 (1865); *nec* Fall.

Peritrechus puncticeps, Leth., Cat., 16 (1874).

Herr Thomson distinguishes this species from the foregoing, thus: "Very like *P. nubilus* in colour and size, but the *antennæ* are rather "stouter, the *eyes* more exserted, the *thorax* rather longer, and the *front* "sparingly but more strongly punctured."

The puncturing of the head is very noticeable.

This is the common British species.

Lee, S.E.: *March*, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

BY JOHN SCOTT.

[*Description of a new species of the genus* ATHYSANUS.]

ATHYSANUS VERRALLI, *n. sp.*

♂. Brownish-yellow, shining. *Crown* with a black transverse streak on the anterior margin extending from eye to eye. *Face* black, towards the apex dusky-brown, with 6–7 fine yellow transverse lines, the upper three joined at the base. *Elytra:* nerves pale, finely margined with dark brown on both sides; apical areas fuscous-black. *Legs* sordid yellow; *thighs:* 1st and 2nd pairs with two narrow black rings at the apex. *Abdomen* beneath black.

♀. *Face* dusky-brown with the transverse streaks somewhat as in the other sex. *Elytra:* apical areas ocellate, or sometimes faintly margined with brown. *Abdomen* beneath yellowish, with a large, somewhat trapeziform, black patch down the centre of each segment; lateral valves next the ovipositor brownish, finely spotted with yellow. The other characters generally as in the male.

Length, ♂, 2¼, ♀, 2½ lines.

Head—crown brownish-yellow, with a black transverse streak on the anterior margin, slightly widened in the middle, and extending from eye to eye; extreme edge yellow; across the middle a brown streak, in which are two large shallow foveæ; the space enclosed between the transverse streaks paler than the basal portion; *face* black, with 6–7 fine, yellow, transverse lines, the upper three springing from a common base near the antennæ; above the latter and adjoining each eye a small yellow spot; *antennæ* brown, apex of the joints paler; *setæ* black.

Thorax—pronotum brownish-yellow, with a slight fuscous shade; next the anterior margin a transverse channel, in which is a very fine short streak about in a line with the inner margin; the space enclosed between the channel and the anterior margin paler than the posterior portion, which is finely wrinkled transversely; *scutellum* pale yellowish, after death slightly whitish-yellow with a more or less distinctly defined darker line down the centre, and a short, brownish, longitudinal streak about midway between the centre and the basal angles. *Elytra* brownish-yellow, shining, nerves paler than the disc, and narrowly margined on each side with dark brown; *clavus:* inner margin between the apex and the central nerve with a narrow dark brown streak; suture very narrowly black; *corium:* ante-apical area adjoining the anterior margin dark brown, sometimes blackish, and frequently with a palish centre; apical areas dark fuscous, sometimes paler in the centre; *wings* dark fuscous, nerves black. *Legs* sordid yellow: *thighs:* 1st and 2nd pairs with two narrow black rings, the inner one sometimes interrupted at the apex; 3rd, at the base, with a black dash down the middle; *tibiæ:* 1st and 2nd pairs with 2–3 small black spots on the outer margin; 3rd, *inner margin black,* towards the apex broken into elongated spots, outer margin with elongate black spots, spines sordid yellow or slightly brownish; *tarsi:* 1st and 2nd pairs slightly brownish; apex of the 3rd joint black; 3rd, black; base of the 1st joint brownish or brownish-yellow.

Abdomen above and beneath black; genital segments black; valve and plates very narrowly margined with pale brown or brownish-yellow.

I do not know any other species of this genus with which the insect just described can be confounded. In the markings on the elytra it somewhat resembles *Thamnotettix splendidulus*, but the difference in form of—and characters on the head of—each, will at once distinguish them, exclusive of the larger size of *A. Verralli.*

I have much pleasure in naming the species after my friend Mr. G. H. Verrall, who was with me when it was captured in some numbers, on the margin of Poole Bay, by sweeping amongst rushes, at the end of September. I have also a single ♂ example taken by Mr. E. Saunders, at Littlehampton, in July, 1873.

37, Manor Park, Lee, S.E.:
February, 1875.

ON THE SPECIES OF *EPHESTIA* OCCURRING IN BRITAIN.

BY C. G. BARRETT.

Having lately had rather unusual opportunities of studying the more obscure species of the genus *Ephestia*, native to, or settled in, this country, I am inclined to endeavour to smooth away some of the difficulty which surrounds them.

I may omit *E. interpunctella*, and also *E. pinguis* and *artemisiella*, which indeed hardly belong to the genus, as they are well known and easily recognizable.

As in many others of the *Phycidæ*, the *structural* characters of the *Ephestiæ* are principally confined to the male sex. These consist of—a lappet or fold of membrane covered with long scales, situated along the under-side of the costa near the base,—one or two tufts or flocks of long hairs at the base of the upper-side of the hind-wings,—and sometimes a peculiar formation of the antennæ beyond the basal joint.

Ephestia elutella, Hübn.—Fore-wings moderately broad, with regularly rounded costa; in the ♂ slightly dilated near the base of the costa,—the large size of the projecting lappet giving the wing a slightly shouldered appearance. Colour pale grey; a straight oblique transverse line at about one-third the length of the wing from the base, inclining outward from the costa, and another, sinuous, line, oblique in the opposite direction, near to, and almost parallel with, the hind margin. Between these on the disc are two dark grey dots arranged nearly perpendicularly to the margin. Hind-wings whitish edged with grey, in the ♂ with *two* tufts of long yellowish scales at the base. Antennæ simple beyond the thickened basal joint.

This species varies greatly in size and colour. Males of the late autumn brood are very small, and sometimes nearly white. Other specimens are dark grey with the lines barely indicated by their pale edges. Some pale specimens have the lines very dark, especially towards the costa, and occasionally a dark shade runs from the costa near the apex into the middle of the disc. Another form has the dorsal margin broadly ochreous or even reddish, and this in many collections, represents—perhaps correctly—*semirufa*, Haworth. A rather curious dwarf form, beaten out of yew trees in Cumberland by Mr. Hodgkinson, appears to have the first transverse line even further from the base than usual, and has therefore also been mistaken for *semirufa*.

Elutella seems to be generally pretty common, and may be beaten out of thatch, ricks, and even other shelters far removed from houses, but it is most common in London and other large towns, and swarms in grocers' warehouses.

It seems to me exceedingly probable that Haworth's description of *semirufa* (as well as of *rufa* and *angusta*) was made from a variety of this species.

EPHESTIA SEMIRUFA, Stn. (Haw. ?).—Fore-wings moderately broad, costa less arched than in *elutella*. Lappet in the ♂ hardly projecting, covered with short, hair-like scales. Colour of fore-wings *pale brownish-ochreous*, sometimes tinged with grey. First line brown, very oblique, near the middle of the wing, second line double, brown, sinuous, further from the hind margin than in *elutella*, the enclosed space in the middle of the wing is therefore small, and the two lines approach each other on the dorsal margin. Disc with two faint brown spots. Hind-wings whitish in the ♂, with two basal yellow tufts; pale grey in the ♀.

Apparently a very local species. The only specimens that I have seen were beaten out of ivy some years ago, on the south coast of Devon, by Dr. Jordan.

EPHESTIA FICELLA, Stn., Dougl.—A large handsome species. Fore-wings very narrow at the base, much arched beyond the middle. Costal lappet small and inconspicuous, not dilated. Fore-wings dull dark grey tinged with brownish (under a lens, cream colour, covered with *large, coarse, black* scales). First line not oblique, whitish, four times sharply angulated, externally edged with black, second line whitish very indistinct, strongly angulated below the costa, and giving off pale dashes to the hind margin, along which is a row of black dots. The blackish distal spots but faintly visible. Hind-wings whitish, having in the ♂ one pale ochreous tuft at the base. Antennæ simple.

This species appears to be rather scarce. It was bred some years ago by Messrs. Doubleday, Bond, and Courtney, from larvæ feeding on cork.

Ephestia ficulella, *sp. n.* Al. exp., 7–8 lines.—Fore-wings very narrow at the base, strongly arched beyond the middle. Costal lappet narrow, with a tuft of *long* hair-like scales laid *lengthwise* beneath the wing. Fore-wings smooth and shining, pale slate colour with a small ill-defined ochreous patch at the base of the dorsal margin. The first transverse line is at one-third the length of the wing from the base, pale grey, externally edged with dark grey *spots*, and nearly perpendicular to the margins. Second line pale grey, often obsolete, oblique, angulated above the middle, slightly edged on both sides with grey dots. Faint dashes of ochreous lie longitudinally between the wing rays. Hind margin faintly dotted with dark grey, cilia pale grey. Hind-wings whitish, edged with brownish, cilia white. ♂ with one ochreous tuft at the base. Antennæ thickened beyond the basal joint, then constricted and slightly bent, and again thickened before assuming the usual simple form.

Head, antennæ, palpi and thorax slate-grey, abdomen brown.

Rather common in London and other large towns in grocers' warehouses, feeding on currants, figs, &c.

This species is placed in many collections under the grotesque (not to say macaronic) names of *figulella*, *figuliella*, and *figulillella*. To prevent confusion as far as possible, I have therefore adopted the nearest feasible approach to these names,—although the insect cannot be said to show any partiality for *little figs* over large ones.

Ephesia passulella, *sp. n.* Al. exp., 6–7 lines.—Fore-wings narrow, especially at the base, costa less arched than in the preceding species. Costal lappet with a broad tuft of scales. Fore-wings pale fuscous with a yellowish tinge, scales large and coarse, and easily rubbed off. First transverse line at one-third the length of the wing, fuscous, ill-defined, straight, and very slightly oblique. Second line parallel with the hind margin, pale, faintly edged with fuscous, often nearly obsolete. Usual two dots on the disc oblique, fuscous, hardly discernible, cilia yellowish-fuscous. Hind-wings white, with scattered fuscous scales, and a faint brown margin, cilia white. ♂ with one ochreous tuft at the base. Head, antennæ, palpi, thorax and abdomen yellowish-fuscous. Antennæ simple beyond the thick basal joint.

Locally common in currant warehouses. An obscure species, probably overlooked. I have named it from its food *(Passulæ corinthiacæ)*, dried currants.

During the summer and autumn of 1874, I was closely tied by business to London, especially to the East End, and naturally turned my attention to such species of *Lepidoptera* as might possibly be within reach. Profiting by hints received from Mr. Howard Vaughan, and introductions from other kind friends, I spent such time as I could spare in investigating some of the extensive grocers' fruit warehouses in the city, more especially in the hope of meeting with the rare and little known *Melissoblaptes cephalonica*. On July 31st, I met with two specimens of this species in a warehouse window; but, as no more appeared for a considerable time, it seems possible that these might have been stragglers of an early brood, previously unnoticed. At the same time *Ephestia elutella* was out in swarms.

On August 19th, *E. ficulella* appeared in numbers with a few *interpunctella*, and remained, I believe, on the wing all that month, but circumstances prevented me from looking for them till Sept. 21st, when I found *Melissoblaptes cephalonica* out in some plenty and in very fine condition, nearly all the specimens then being males, the females making their appearance later. This species continued out accompanied by a late brood of *Ephestia elutella* and of *E. interpunctella* till the end of October. In this month also appeared a late brood of *E. ficulella* very sparingly.

I first noticed the more obscure *E. passulella* on October 10th, flying among the swarms of *elutella*, and it continued to appear freely till near the end of October.

For *E. ficella* I did not find a favoured locality till too late for it to be of any use; but, at the end of October, in a warehouse in which rough cork had been stored for a considerable time, I found the remains of many specimens in the spiders' webs. Early in the month casual specimens occurred in the fruit warehouses and in the streets.

This last species seems very sluggish, and I never saw it fly, but *E. elutella* and *E. passulella* are exceedingly active and lively, flying freely in the afternoon as soon as a lamp is brought to bear on their retreats. Indeed, the air often seemed alive with these species and *interpunctella*,—all three having a similar hovering flight. The flight of *M. cephalonica* is quite different when disturbed, as it darts down in a zig-zag, and almost immediately settles again. Towards evening the males run about, quivering their wings in a peculiar manner. This species shows wonderful skill in concealment by selecting the projections and inequalities of rough beams, to which its appearance, from its rough blunt head and closely folded wings, bears so close a resemblance that I have taken specimens between my fingers before I could satisfy myself that they were not projecting splinters.

It is, of course, superfluous to remark that these species must have been introduced into this country with the dried fruits upon which they feed. More than this, they are still being constantly replenished from abroad, as every cargo of fruit swarms with larvæ, vast numbers of which die from change of climate or some other cause, and many doubtless come to maturity. It is obvious, however, that numbers are also hatched and reared on the spot, from the fact that the places in which *old* currants have been stored, so as to serve them for food, are always the most prolific. Indeed, the new fruit only begins to come in at the end of September, when the moths are already appearing in plenty. It is, of course, impossible to obtain certain information as to *species* from workmen or even from the owners or foremen of the warehouses; but, as far as I can judge, the same species in equal numbers have been found for many years past. Very certain it is, that they have formed a settlement from which it would be no easy task to expel and exterminate them.

From larvæ secured and eggs obtained I hope materials will be furnished for interesting papers from my friend Mr. Buckler in the future.

Pembroke: 1875.

NEW GENERA AND SPECIES OF LONGICORNS FROM SOUTH AMERICA.

BY H. W. BATES, F.L.S.

CHALCOPRIONUS, nov. gen. (*Prionidæ*, sub-fam. *Ctenoscelinæ*).

♂. *Corpus elongato-oblongum, suprà sub-metallicum, nudum. Caput exsertum. Oculi emarginati, sub-grosse granulati. Mandibulæ elongatæ, subrectæ, extus apicem versus dentatæ, intus utrinque prope basin unidentatæ. Palpi haud elongati, apice vix dilatati, truncati. Thorax latus, transversus, lateribus crenulatis, ante basin spinosus, deinde ad basin subito augustatus; suprà subtilissime granulatus, opacus, lineis nitidioribus scabrosis. Elytra thorace angustiora et quintuplo longiora, parallelogrammica, apice ad suturam spinosa. Antennæ corpore dimidio longiores, filiformes, tuberculatæ, nudæ; articulo primo elongato, gradatim clavato, tertio cæteris longiori,* 4—11 *subæqualibus,* 10—11 *solùm subtus strigosis. Pedes elongati, graciles, femoribus tibiisque anterioribus denticulatis; tarsi articulis* 1—3 *subtus breviter, dense pilosis,* 3^{io} *breviter bilobo; anticis lateribus longe ciliatis. Corpus subtus subnitidum; mesosternum convexum. Metasternum elongatum, episternis prope apicem paulo angustatis. Abdominis processu inter coxas anguste* triangulari.

♀. *Thorax elytris multo angustior, omnino scabroso-punctatus et inæqualis, spina valida laterali mediana, altera minori juxta angulos anticos. Antennæ corpore paulo breviores, haud tuberculatæ, articulis terminalibus minute striatis. Pedes antici haud denticulati, nec tarsis ciliatis.*

This fine new Prionid might, at first glance, be taken for a *Pyrodes*, in consequence of its metallic colour and general form; it belongs, however, in reality to a different section of the family. But it has no close relationship to the metallic *Psalidognathi* of the same section, having more real affinity with *Ctenoscelis*, in spite of its very different facies. In the sculpture of the thorax of the ♂, as well as in the form of the mandibles, and to a great extent also of the antennæ, it closely approaches *C. ater;* from which it differs in the form of the thorax, especially in the long lateral spine; in the quite different shape of the same organ in the ♀, and in the only partially and minutely denticulated tibiæ. As *Mecosarthron* in the sub-family *Ctenoscelinæ* presents some approximation to it in the length of the thoracic spine, our new genus may perhaps be admitted into the same group.

CHALCOPRIONUS BADENI, *n. sp.*

Elongato-oblongus, nigro-cupreus, capite et mandibulis grosse scabroso-punctatis, illo medio usque ad collum sulcato; thorace subtilissime punctulato, opaco, dorso vittis medianis duabus, lituraque utrinque laterali, scabrosis, nitidis; elytris densissime subtiliter ruguloso-punctulatis, basi grosse punctatis, utrinque costulis tribus subobsoletis: ♀ differt thorace grossissime scabroso, elytris lætius cupreis.

Long., ♂, 1 *in.* 9 *lin.;* ♀, 1 *in.* 11 *lin.*

A pair of this handsome and remarkable Longicorn were brought home by their captor, Herr Wallis, who took them at Frontino, on the Cauca side of the Central Cordillera in New Granada. The general colour is dark coppery-brown or black, the elytra (especially in the ♀) being most metallic. Owing to the dense and fine sculpture, the surface, though without pubescence, is scarcely shining. The thorax in the ♂ is considerably wider than the elytra, and its width is more than double its length. Anteriorly, it is not deeply emarginate to receive the head, and the anterior angles are broadly truncated; from the exterior end of the truncature it rather rapidly widens (with crenulated edges) to the very acute lateral spine placed much behind the middle, whence it rather suddenly narrows to the basal angle. The surface is very minutely punctulate and opaque, except for the scabrous shining lines, of which there are two running along the disc from the fore to the hind margin (each dilated in the middle), and one on each side extending from the lateral spine to the disc, and thence abruptly bent towards the base. The thorax in the ♀ is equally short, but much narrower;

the anterior angles terminate in a short spine, and the long lateral spine is exactly in the middle, the surface being covered with coarse rugged sculpture, and with two irregular longitudinal ridges.

The male of this fine insect is in the possession of Dr. F. Baden of Altona, to whom my collection is indebted for the female specimen.

LAMIIDÆ, sub-fam. *Anisocerinæ.*

PHACELLOCERA PLAGIATA, *n. sp.*

P. plumicorni robustior; fusca, vitta lata mediana a vertice usque prope elytrorum apicem (ibique dilatata) ducta, ochraceo-cinerea; antennis minus elongatis, nigro-piceis, articulo 3^{io} *apice nodoso.* *Long.* 6½ *lin.*

Of rather broader and more robust form than either *P. plumicornis* or *Batesii*, and totally different in colour, the upper surface being dark brown, with a broad central ochreous-ashy vitta extending from the top of the forehead, along the crown, thorax, and sutural region of the elytra, nearly to the apex, just before which it is widely dilated, thus leaving only a narrow apical border of the dark ground colour. The sculpture of the elytra is very different from that of the other species, the brown portion (especially towards the base) being thickly punctured, with the anterior edges of the punctures raised in granulæ. The body beneath scantily pubescent. Antennæ piceous; apex of third joint enlarged and hairy, fourth and following simple. Tarsi testaceous tawny. The pro- and meso-sterna are narrow and simple.

Yurimaguas, R. Huallaga: collected by Mr. E. Bartlett.

CHALASTINUS RECTICORNIS, *n. sp.*

C. Egaensi (White) *simillimus, at antennis articulis* 5—7 ♂ *rectis; fuscus, ochraceo-irroratus, lineaque dorsali thoracis ochracea; elytris maculis majoribus nonnullis fulvis, fasciaque obliqua ante apicem ochracea, antice late nigro-marginata.* *Long.* 6—7 *lin.* ♂.

Much resembling *C. Egaensis*, but distinguished by the antennal joints being quite straight in the ♂, instead of the 5th to 7th being curved and produced interiorly at their apex; these joints also are considerably longer than in *C. Egaensis*. In other points there are several minor differences. The elytra are much more triangular, and the basal crests much more elevated. The posterior ochreous fascia is sub-interrupted near the suture (as in *Egaensis*), but preceded by a much broader black fascia, and there is a conspicuous oblong black spot on the disc of each, near the suture.

Santarem, Amazons; from a collection obtained by Mr. Janson. Three examples, all ♂.

GYMNOCERUS BADENI, *n. sp.*

Oblongo-ovatus, suprà cinereo-albus, fusco-variegatus; thoracis dorso valide tri-tuberculato; elytris disco postico bicostatis, basi granulatis; antennis articulo tertio apice perpaulum, 4to magis, incrassatis, nudis; articulo 11mo precedenti haud breviori; mesosterno bituberculato. *Long.* 8 *lin.* ♂.

In general form and facies similar to *Anisocerus scopifera* and *onca;* but having the form of antennæ of *Gymnocerus* (especially *G. monachinus*). The head is brown and punctured in front; ashy-white on the crown. The thorax has a strong conical lateral spine, and three large tubercles in triangle on the disc; the tubercles and other lesser elevations are black, the space between them tawny-brown, the rest ashy-white. The scutellum is tawny. The elytra are relatively narrower and more trigonal than in the typical species; the basal part is granulated, densely so only on the elevations, and on the posterior disc of each are two raised lines united behind; the general colour is ashy-white, the granules and some patches dark brown, the largest patches forming a flexuous belt from the shoulder towards the scutellum and suture (with a separate round spot near the latter), and a second short belt behind the middle varied with long tawny streaks. The legs and antennæ are pitchy-red; the tarsi ashy, with the claw joint red.

Frontino, New Granada; coll. Dr. Baden and H. W. Bates.

HOPLISTOCERUS DIVES, *n. sp.*

Oblongus, æneo-viridis, glaber, elytris crebre æqualiter punctatis, vix nitidis; pedibus antennisque nigro-chalybeis, femoribus posticis abdomineque læte rubris. *Long.* 5 *lin.* ♂.

Head brilliant golden-green, front convex, closely and confluently punctured, vertex transversely strigose, labrum red. Thorax unarmed, but sides slightly tumid, brilliant brassy-green, and surface transversely strigose. Scutellum broad, truncated behind, brassy-green. Elytra dark silky-green with purplish reflexions, uniformly punctured. Legs and tarsi dark steel colour, hind femora and abdomen red. Antennæ (♂) longer than the body by one-half; scape forming an elongated smooth club; 2nd to 4th joints with a strong sharp spine at their apices; 11th short, claw-like.

Bahia; taken by Mr. Edwyn Reed.

The species is perfectly congeneric with *H. gloriosus*, and the form of the scape of the latter (thickened from near the base) proves to be only a specific character.

The genus DEMOPHOO, Thoms., admitted by Lacordaire, cannot be separated from *Hoplistocerus*. *D. hamatus*, which I have had an opportunity of studying in the rich collection of Dr. Baden, somewhat resembles *H. gemmatus* (Bates), Nicaragua, but is a perfectly distinct species, with an obtuse lateral tubercle to the prothorax.

ONYCHOCERUS AMPLIATUS, *n. sp.*

Magnus, ovatus; infrà niger, opacus, suprà cinereus; thorace parvo, utrinque ante et supra coxam spina magna, disco tuberculis duobus valde elevatis; elytris amplissimis, suprà utrinque crista valida basali, tuberculis duobus disci, alteris majoribus geminatis posterioribus, alteraque prope apicem, cinereis, plagis utrinque marginalibus nigris; pedibus nigris, opacis. *Long.* 10—11 *lin.* ♀.

Relatively much broader than *O. scorpio*, with much smaller thorax. The antennæ (♀) are only two-thirds the length of the body, with long 2nd joint (half as long as the 3rd), and 5th to 10th abbreviated and dilated; 11th claw-shaped. All the tibiæ are much compressed and dilated towards the apex, and have a conical prominence on the outer edge near the knee joint, the rest of their edges being simple. The spine on the flank of the prothorax (below the lateral tubercle) is longer than in *O. scorpio*, and the two dorsal tubercles more elevated. The elytra are broader and shorter; the shoulders produced and sub-falcate, the sides sinuated behind them, and much rounded outwards behind the middle; the ridge-shaped tubercles on the posterior part of the disc are double and much elevated; the humeral prominences and basal crests are tuberculated, and there is a line of tubercles along the suture.

R. Ucayali and Macas; Peru and Equador. The ashy colour of the upper surface varies, probably according to locality, from uniform ashy-white to ashy more or less clouded with dusky.

EUSTHENOMUS, *nov. gen.*

Gen. Platysterno affine atque quoad formam simile; differt antennis utroque sexu elongatissimis, etc. Corpus oblongum. Caput fronte infrà dilatata; oculis distantibus, subtiliter granulatis. Antennæ (♂) *corpore triplo longiores simplices; scapo pyriformi, articulis* 8—11 *valde elongatis, subæqualibus. Thorax dorso valde bicarinatus, spina laterali magna, acuta, simplici. Elytra apice late rotundata; humeris valde extantibus, acutis; dorso utrinque valde unicarinata, carinis post scutellum carina transversali conjunctis. Mesosternum transversum, antice bituberculatum; acetabula extus late hiantia. Tarsi antici* (♂) *vix dilatati, articulo primo lateribus ciliatis.*

This genus will not fit any of Lacordaire's "groups." In its character it is almost exactly intermediate between the genera *Platysternus* and *Steirastoma*, having the antennæ of the latter, and the thorax, elytral carinæ, and open middle acetabula of the former. With regard to the lateral spines of the thorax, although they have not a tubercle on their anterior sides as in *Platysternus*, there is a similar tubercle, a little further removed, situated on the flanks of the thorax. The strongly raised median carina on each elytron, curved outwards near the base, and emitting a branch to the suture, is a character which it shares only with *Platysternus;* the base of the carina also projects forward into a sinuation in the hind margin of the thorax as in *Platysternus.* There is a similar carina near the suture, and a less conspicuous one near each side. The humeral angles of the elytra differ in form from those of all allied genera at present known; they project as a strong conical tooth, with the acute apex not pointing forward, as in *Polyrhaphis,* but laterally, and the anterior margin perfectly straight: the apices of the elytra are very obtusely rounded. The long and slender apical joint of the antennæ separates this genus from the *Anisocerinæ,* with which it has many points in common. In the single example supposed from the simple anterior tarsi to be a ♀, the antennæ are imperfect, but they show no abbreviation of the joints as far as the 6th.

EUSTHENOMUS WALLISI, *n. sp.*

Oblongus, latus, tomento carneo-fulvo fusco-maculato vestitus; capite grosse punctato; thorace carinis dorsalibus nigris, nudis; elytris basi (cum carinis) nigro-granulatis, cæteris fusco-punctatis, maculisque difformibus et fascia lata pone medium (ad suturam interrupta) velutino-atrofuscis: antennis griseis, haud ciliatis, articulis apice nigris. *Long.* 1 *in.* *Lat. pone humeros,* 6 *lin.*

Similar in form and convexity to *Platysternus hebræus,* but antennæ much longer and more robust. The whole upper surface is clothed with a pinkish light brown tomentum, the granulations on the head and base of the elytra, and the stronger carinæ, being black, naked, and shining. The elytra are much varied with markings and spots of a velvety purple-brown colour; some of the largest spots uniting behind the middle into a rather broad fascia, interrupted near the suture and on the sides. The under-side is scantily pubescent, black and shining.

Taken at Frontino, on the Cauca side of the Cordillera, New Granada, by Herr Wallis. Two examples only, of which one has been kindly given me by Dr. Baden, the other remaining in his collection.

Bartholomew Road, Kentish Town, N.W.:
April 1875.

Localities for Typhæus vulgaris.—It may be of interest to note that at 6 p.m. on March 25th, I found a ♂ specimen of this beetle in Kensington Gardens, in the act of taking flight and very lively. Three days after, I found another ♂, dead, in one of the open drives of the New Forest.—A. O. WARD, 13, Parkfields, Putney: *April 9th, 1875.*

Arrested development in Timarcha coriaria and Lagria hirta.—The following instances of arrested development, causing a want of symmetry in the legs of insects, are interesting, and seem to me to be worth publishing, inasmuch as, so far as I know, no similar instances have been recorded. In a ♀ specimen of *Timarcha coriaria*, taken last autumn in Switzerland, this want of development occurs in the right middle leg, all the others being of normal size. The following are the dimensions of the stunted right leg, and its normal fellow on the left side:—Femur, L., 3 millimetres, R., very slightly shorter; tibia, L., 3 mill., R., 1·75 mill.; tarsi, L., 2 mill., R., 1 mill.: the claws being exceedingly minute and barely projecting beyond the last tarsal joint, all of which are present and equally developed, though not attaining the normal size.

In a specimen of *Lagria hirta*, the dwarfing occurs in the posterior pair of legs, and in this case again the right leg is the stunted member. The measurements of this specimen are:—Femur, about 2 mill. in both legs; tibia, L., 2 mill., R., 1.75 mill.; tarsi, L., 1·50 mill. (last joint wanting), R., 1 mill.

In both cases the want of symmetry caused by the arrested growth is more conspicuous than would appear from the above figures.—W. A. Forbes, 35, S. Castle Street, Edinburgh: *March* 21*st*, 1875.

On some European 'Micros' away from home.—Among the species described by the late Dr. B. Clemens, Mr. Stainton recognises many European species, as shown in his valuable re-publication of Dr. Clemens' papers.

Prof. Frey, of Zurich, has recently described a few American species from the vicinity of Cambridge, Massachusetts, and among them recognises *Lithocolletis trifasciella, var.?* Haw. I have never met with this, nor indeed any 'Micro' mining honeysuckle leaves, but I learn from Prof. C. V. Riley that he has met with a species (probably *L. trifasciella*) mining them at Chicago. It has probably not extended its migrations southward since its arrival in this country.

Among the species new to this country which have come under my observation (some 300 in number), many, no doubt, will prove to have been previously known in Europe.

Among them I recognise *Endrosis fenestrella* from California, *Tinea tapetzella* from Canada, and *T. pellionella* from Canada and Kentucky; and the beautiful *Argyresthia Gœdartella* from Canada. It is a little singular, that the greater number of European species heretofore found in this country are found as yet only in Canada and the more Northern States. On the other hand, some genera found in Europe, e.g. *Cleodora*, have not been found in this country north of Texas. But the particular species to which I wish to draw attention, is the well-known and pretty little *Gelechia Hermannella*, and a singular (climatic?) variety of it. So far as I can learn, no variety of this species has yet been found in Europe, though the species occurs from Lapland to Naples.

Some three years ago, I found the larvæ mining leaves of *Chenopodium* on the shore of Lake Michigan, lat. 43 deg. N.; and from them I bred several specimens, differing in no essential particular from the figure in Nat. His. Tin., Vol. ix, plate 8. Afterwards, I often found them mining the same leaves in Northern Kentucky, lat. 38 deg. (nearly); but, as I had as many specimens as I then wanted, and never thought of a variety, I did not attempt to breed them until the summer of 1874. The larvæ was the same, the mine was the same, and the mined leaves were of the same plant as I had found in Wisconsin, but, to my surprise, all the specimens that I have yet bred differ so decidedly from the ordinary *G. Hermannella*, that probably any Entomologist would have considered them, if only captured, as of distinct species. Yet a little ingenuity, on comparison of the specimens, will show how the one pattern of ornamentation is readily resolvable into the other. One who knows this 'Micro,' or the figure of it before mentioned, will remember the silvery fascia dark margined on both sides, the small silvery spot before the fascia beneath the fold, and the larger one just above the fold behind the fascia. Now, suppose the dark margins of the fascia increased in quantity, especially the posterior dark margin; then suppose all the dark margin *behind* the fascia gathered on the costal margin forming a velvety black spot so large that it touches the small silvery spot above the fold behind the fascia; in like manner, suppose the anterior dark margin of the fascia gathered together in a velvety black spot *before* the fascia on the dorsal margin, large enough to incorporate the silvery spot before the fascia beneath the fold; then suppose the fascia widely interrupted in the middle:—and you have the variety. The costal par of the fascia thus becomes the anterior silvery margin of a large velvety-looking black costal spot, which, by its confluence with the silvery spot above the fold, appears to be margined with silvery at that point, and sometimes has a few silvery scales scattered through it; and the dorsal portion of the fascia becomes the hinder silvery margin of a large velvety-looking black dorsal spot, which, by its confluence with the silvery spot beneath the fold, appears to be margined with silvery at that place, and sometimes contains a few scattered silvery scales. Except that the quantity of black and silvery scales is increased somewhat, the insect does not differ from the old form.

Miss Mary E. Moutfeldt, of St. Louis, Missouri, informs me that she has found only the variety there. St. Louis is also near lat. 38 deg., that is, nearly 8 deg. south of Naples; but then we are on the isothermal line of London, England, with much hotter summers and colder winters. But whether climate has anything to do with it is matter of conjecture.—V. T. CHAMBERS, Covington, Kentucky, United States: *January 5th*, 1875.

ENTOMOLOGICAL SOCIETY OF LONDON: *1st March*, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

W. D. Robinson-Douglas, Esq., of Castle Douglas, N.B., formerly a subscriber, was elected a member of the Society.

Mr. F. H. Ward exhibited living examples of a *Lepisma* distinct from *L. saccharina*, and unknown to Sir J. Lubbock, to whom they had been submitted. They had been found in and about a bake-house in the neighbourhood of London. Mr. McLachlan said it would be interesting to ascertain if American flour were used in the bake-house, as the species might be identical with one of those recently described by Dr Packard in America. Mr. Ward said he had seen the species from Philadelphia. He also exhibited a set of microscopic slides illustrating the œconomy, &c., of the chigoe.

Mr. Champion exhibited a well-grown individual of *Empusa pauperata* sent by Mr. J. J. Walker from Corfu.

Mr. W. C. Boyd communicated some notes with reference to the fleas from rabbits' ears exhibited by Mr. Verrall at the previous meeting. He had found as many as 300 fleas or thereabouts in the ears of one rabbit, but did not think they troubled the animal much as there were no signs of inflammation. He also stated that fleas swarmed on hedgehogs.

Mr. Dunning called attention to a paper by Dr. Leconte on entomological generic nomenclature, appearing in the December No. of the 'Canadian Entomologist.'

The Rev. H. S. Gorham read descriptions of 18 new species of *Endomychidæ*.

15*th March*, 1875.—The President in the Chair.

The Rev. R. P. Murray communicated notes bearing on the question of the specific identity or distinctness of Butterflies of the genus *Terias*, known as *T. Hecabe*, L., *Æsiope*, Mén., and *Sari*, Horsfld., and exhibited the insects. Mr. Miskin of Brisbane informed him that he had bred typical *Hecabe* and *Æsiope* from larvæ feeding on the same plant (a species of *Indigofera*), and Mr. Murray had received numerous intermediate forms from Queensland, and also from N. W. India, where they appeared to be equally common. In Japan, typical *Hecabe* was common, but *Æsiope* apparently absent, though a species occurred there which he could not distinguish from the W. African *Brenda*, Doubd. As regards *T. Sari*, the evidence was not so strong, but still he thought it might be a form of the same species.

Professor Westwood said it would be important to ascertain whether the supposed species belonged to the same or different broods, reminding the meeting of the differences in the broods of our common White Butterflies which had been the cause of their receiving distinct names. Mr. Butler was disposed to doubt the correctness of the supposition that *T. Sari* was only a form of *Hecabe*, though he thought the breeding of the latter and *Æsiope* from the same food-plant was a strong point in favour of their identity.

Mr. A. F. Sealy exhibited and distributed examples of an *Ornithoptera*, from the Malabar Coast. He had bred them from larvæ feeding on *Aristolochia indica*.

Prof. Westwood exhibited drawings of new forms of *Heteromera*, illustrating several interesting new genera and species to be described by him.

Mr. Butler read a review of Boisduval's recently published volume of the Suites à Buffon, Lépidoptères, containing the *Sphingidæ* (including *Zygæna*, *&c.*). His criticisms were of an adverse nature as to the letter-press, and favourable as to the plates.

Dr. Sharp communicated some necessary corrections to his paper on the Water-Beetles of Spain.

Mr. McLachlan stated that an examination of examples of the *Lepisma* exhibited at the last meeting by Mr. Ward had not convinced him of its identity with any of Dr. Packard's recently described American species. Prof. Westwood said he had seen British specimens of *Lipura corticina*, Bourlet, not included as native in Sir John Lubbock's Monograph.

Mr. F. Smith read descriptions of new genera and species of Indian Aculeate *Hymenoptera*, collected by Mr. Rothney; referring to species of *Nomia* and allies with capitate antennæ, he stated that he was acquainted with 5 speices in which that peculiarity existed.

Mr. Baly communicated descriptions of new genera and species of *Phytophaga*.

Mr. C. O. Waterhouse exhibited a living example of *Monohammus Heros* bred in England from foreign timber. He also read the first part of a paper on the Lamellicorns of Japan, including 40 new species.

5th April, 1875.—The President in the Chair.

W. L. Distant, Esq., of Streatham College, Dulwich, was elected an ordinary member.

Mr. Jenner Weir exhibited a number of juvenile *Mantidæ* that had emerged from an egg-case received from Ceylon, and remarked on their great resemblance to those recently exhibited from Borneo.

Mr. Bond exhibited a locust found alive at the bottom of a dry well at Brighton in February. The species was uncertain.

Mr. Sealy read notes on the habits of the species of *Ornithoptera* from the Malabar coast exhibited at the last meeting. The insect was allied to *O. Amphrisius*, but there appeared to be doubt as to its identity with that species. The pupa possessed the power of causing a sound. He called attention to a peculiarity in the formation of the hind-wings of the ♂, there being a large pouch on the anal margin filled with fluffy hairs.

Mr. McLachlan read extracts from a letter received from Pueblo, Colorado, in which the writer stated that in opening his potato-pits in winter, he had found the potato-beetle (*Doryphora* 10-*lineata*) moving briskly and eating greedily, and expressed an opinion that if the importation of potatoes into England were not soon stopped, the beetle would soon be here. Mr. McLachlan also read a note by Lieut. Carpenter of the United States Geological Survey, contained in the reports of the Zoological collections made by him in Colorado in 1873 (Washington: 1875). Lieut. Carpenter stated that not a single specimen of the beetle had been seen east of the dividing range. He was of opinion that the insect was dispersed solely by means of seed-potatoes, as it was of sluggish habits and incapable of spreading widely by its own instinct. Its absence from the Salt Lake Basin might be accounted for from the fact of the cheapness of vegetables in the Mormon settlements not rendering it necessary to import potatoes.

Mr. Bates alluded to the original home of the insect, which he thought was the eastern plateaus of the Rocky Mountains, and he had seen it in large numbers from the plateau surrounding the city of Mexico. He thought that the chance of immunity from it in Europe rested more with climatic conditions than anything else, for although the extremes of heat and cold in those parts of America where it was now proving destructive were greater than here in England, yet it was not there subjected to the great moisture of our climate which would possibly be fatal to it. In connection with this, he alluded to the great similarity of the insect-fauna of California (where the beetle had not appeared), and other parts of North-Western America with that of Western Europe, a similarity greater than that which existed between our fauna and that of the nearer eastern States of America.

Mr. S. Stevens said he had received the beetle in large numbers from Orizaba.

Mr. Jenner Weir alluded to the steps taken by our Government concerning an inspection of potatoes imported from America. The quantity was probably only about 1000 cwt. annually, and consisted solely of seed-potatoes which came in a very clean condition.

Mr. E. Saunders read the first portion of a Synopsis of British *Hemiptera-Heteroptera*.

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ERRATA.

Page 167, line 23 from top, *for* "Above these" *read* "Above, there."
„ „ „ 30 „ „ „ "♀" *read* "♂."
„ 168, „ 17 „ „ „ "*postice*" *read* "*posticæ.*"
„ 175, „ 6 „ „ „ "Tobago" *read* "Taboga."
„ 206, „ 7 „ „ „ "least" *read* "best."
„ „ „ 3 „ bottom, *for* "adjurans" *read* "adjuvans."
„ 207, lines 2 and 16 from top, *for* "adjurans" *read* "adjuvans."
„ 251, line 18 from top, *for* "hemichroa" *read* "Hemichroa."

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VOL. XI.

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Being much occupied during the summer months with business and Entomological pursuits, I do not think it wise to continue my usual Circular, fearing I might be unable to give those who write to me proper attention. It will therefore be discontinued, at least for some months.

I shall at all times be happy to hear from my numerous correspondents, and wish to take this opportunity to thank them for favors received during the past winter.

I am, Sir,

Respectfully yours,

JOHN T. CARRINGTON.

February, 1875.

10, POOLE ROAD,
EGREMONT,
BIRKENHEAD.

Sir :—

I desire to thank my correspondents, for their kindness in submitting to the delay in my answering them during the past month—caused by a somewhat severe indisposition from which I have lately been suffering. Those who have not already received replies, will shortly.

Having recently bought two collections of Lepidoptera, I have a large number of specimens on hand, too numerous to specify on other side. I shall be glad to send them away at nominal prices, to clear them off. I will send particulars on application.

I am, Sir,

Respectfully yours,

JOHN T. CARRINGTON.

December, 1874.

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D. Vinula (Pupæ only)	0	2	,,
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Noctua Sobrina, very fine, equal to bred, captured by myself in Scotland this season	25	0	,,
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T. Piniperda	0	6	,,
T. Opima	0	6	,,
O. Suspecta	0	8	,,
D. Capsophila	1	6	,,
*Polia Nigrocincta (bred from Larvæ taken in Isle of Man this season	17	6	,,
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*E. Lichenea	0	6	,,
A. Occulta, dark Scotch form, fair specimens	1	0	,,
C. Solidaginis	0	6	,,
*C. Chamomillæ	1	6	,,
,, ,, Pupæ	1	3	,,

	s.	d.	
A. Myrtilli (Pupæ)	0	6	ea
E. Vespertaria (male)	0	6	,,
F. Brunniata (Pinetaria)	0	4	,,
C. Boreata	0	3	,,
L. Cæsiata	0	2	,,
E. Ericetata	0	6	,,
*Eup: Venosata	0	2	,,
,, Satyrata (var: Callunaria)	0	3	,,
,, Trisignata (Pupæ)	0	6	,,
,, Albipunctata (Pupæ)	0	6	,,
,, Valerianiata (Pupæ)	0	6	,,
* ,, Pimpinellata	0	6	,,
,, ,, (Pupæ)	0	3	,,
,, Nanata (Pupæ)	0	2	,,
* ,, Absynthiata	0	3	,,
,, Assimilata (Pupæ)	0	2	,,
,, Pumilata	0	3	,,
Y. Ruberata	0	6	,,
C. Munitata	0	6	,,
C. Sagittata (Pupæ only)	1	6	,,
C. Immanata	0	3	,,
C. Suffumata	0	3	,,
C. Populata	0	3	,,
C. Imbutata	0	3	,,
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